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ABSTRACT

The practicum was designed to identify and remediate the weaknesses in the learning abilities of 26 students in a top homogeneously grouped fourth grade class. Individual strengths and weaknesses for each student were identified by various factors and the 24 subtests of the Structure of the Intellect-Learning Abilities Test (SOI). An educational intervention program to remediate the specific deficiencies was matched to the individual weaknesses. SOI Exercise Sheets and the SOI Sourcebook were included in the curriculum. Evaluation following anticipated attainment for each student in each area of weakness proved successful. Factors which contributed to the success of the program were skillful and regular teaching to the weaknesses, teacher and staff dedication to the improvement of deficiencies, and the comprehensiveness of the intervention program. Appended are tables with statistical data. (Author/SB)

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DEVELOPING AND IMPLEMENTING A MODEL FOR THE REMEDIATION OF WEAKNESSES OF LEARNING ABILITIES IN GIFTED AND HIGH ACHIEVING FOURTH GRADE STUDENTS

By

Lee McGowan

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ABSTRACT

AUTHOR: Lee McGowan

TITLE: Developing and Implementing a Model for the Implementation and Remediation of Weaknesses of Learning Abilities in Gifted and High Achieving Fourth Grade Students

DESCRIPTOR: Able Students; Ability Grouping; Achievement; Academically Gifted; Cognitive Ability; Exceptional (atypical); Gifted Students: High Achievers; Mentally Advanced Children; Regular Class Placement; Superior Students.

ABSTRACT: This practicum was designed to identify and remediate the weaknesses in the learning abilities of children with demonstated high potential. Individual strengths and deficiencies for each student were identified by various factors and the twenty-four subtests of the Structure of the Intellect-Learning Abilities Test (SOI-LA), by Mary Meeker, 1975.

The target group was twenty-six students in a top homogenously grouped fourth grade class.

An educational intervention program to remediate specific deficiencies was matched to the individual weaknesses. SOI Exercise Sheets and the SOI Sourcebook were included in the curriculum. Evaluation following anticipated attainment for each student in each area of weakness proved successful. Factors which contributed to the success of this program were:

skillful and regular teaching to the weaknesses, teacher and staff dedication to the improvement of deficiencies, and the comprehensiveness of the intervention program.

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PREFACE

The purpose of this project was to develop and implement a model for the identification and remediation of weaknesses in the learning abilities of children with demonstrated high potential. The target group was the top class from the homogeneously grouped, twenty-six students in Solano School in Osborn School District in north central Phoenix, Arizona.

Individual strengths and deficiencies for each student were identified by various factors and the twenty-four subtests of the Structure of the Intellect-Learning Abilities Test (SOI-LA), by Mary Meeker, 1975. The twenty four subtests were selected for their established relationship to school learning, particularly, reading, arithmetic, writing and creativity.

An educational intervention program was based on a strategy for remediation of specific deficiencies. The program matched the individual weaknesses to the appropriate SOI Exercise Sheets and the appropriate Sourcebooks.

The significiant gains as shown in the attainment of the expected goals of the intelligent but underachieving students can be attributed to the use of the materials, the teacher's skillful use and attention given to the student deficiencies, and attention to these suggestive techniques in overall presentations and student work in all learning and instruction in the total curriculum. Continuous encouragement and monitoring by this writer ensured implementation of this model.

Chapter I of the Practicum Report is concerned with the documentation of a need to improve the identified weak areas of learning of high achieving students who have demonstrated high potentials.

The important factor among the high achieving students is that ability may lie in many capacities. General ability may or may not be reflected in academic achievement as anticipated by general daily achievement or by test scores of measured mental abilities revealed as IQ scores. Daily grade level achievement in the educational program does not preclude that differentiated strengths and weaknesses are not present. The need to examine significant, outstanding theories about intelligence, learning, and knowledge led to the need to plan for each student, a program that will enhance strengths and improve weaknesses. There is need for a comprehensively balanced instructional program that includes the numerous abilities.

Chapter II contains the objectives of the practicum. The objectives focused on the improvement of the weak areas of each of the fourth grade target students. A remediation program follows prescriptive instructional materials for each diagnosed level of learning.

Chapter III pertains to the review of literature which provided rationale for the development and implementation of the model developed in this practicum. Literature emphasizes commonalities that imply a universal bond upon which intellectual assessments can be made of a student's individual strengths and weaknesses. These strengths and weaknesses can serve as objectives for learning in the high achieving students.

Chapter IV explains the strategies which were used in the development and implementation of the model in this practicum. A description is given of the establishment of the strengths and weakness of the learning abilities

of each student. The remediation program, including objectives, definitions, and suggested techniques, are explained in this section.

Chapter V includes the evaluation of the objectives of this practicum.

Chapter VI summarizes and provides conclusions and recommendations regarding the project.

Chapter VII outlines the dissemination of this model.

Chapter VIII explains the institutionalization of this model.

CHAPTER ONE

IDENTIFICATION OF NEED

I. IDENTIFICATION OF NEED

Within Solano School, the uppermost socio-economic area of Osborn School District #8, in northcentral Phoenix, Arizona, was a high homogeneously grouped fourth grade classroom of twenty-six students. Based on a teacher interview the students were high achievers and worked successfully in materials above grade level. The teacher stated they excelled in daily work that accompanied the basic program as well as supplementary higher level materials. Despite the high overall attainment, many of the students had difficulties that could not be easily explained, such as, lack of comprehension of simple directions. The teacher further stated that he feared the students were not receiving opportunities commensurate with individual unique abilities and needs.

Examination of student records revealed no measure of mental ability nor any record of specific learning ability testing. Thus, there was no measure available to show individual potential or individual learning ability. A search throughout the district revealed no test or personnel with any knowledge of any test name which could measure precise individual learning abilities of high achieving students.

An out-of state search revealed the Structure of Intellect-Learning Abilities Test, SOI-LA, by Mary Meeker (1975) as the possible instrument of measure. However, upon contacting the author, it was discovered that some experience and inservice of the test administration, scoring, and interpretation would be needed. The school principal, classroom teacher, the school

psychologist, and learning disabilities teacher were selected as key people to receive this inservice. A consultant was contracted to give this needed inservice. With this accomplished, the SOI-LA was administered to each of the twenty-six fourth grade students.

The SOI-LA Test results revealed that each of the children who had taken the test had scored high with respect to some subtests and low with respect to other subtests. Further testing of each of the twenty-six students was needed to establish an IQ score and percentile and stanine. The Otis-Lennon Mental Ability Test, Elementary II Form J produced a D.I.Q. score, a a grade percentile, and a grade stanine score. Additional data was needed to supply further information to establish the over-all potential and learning background for each child. This information included: (1) attendance and absence record, (2) chronological age, and (3) teacher remarks concerning behavior patterns of each of the students.

Consequently, the basis was established to develop for each student a specified higher level of achievement in each subtest which was below grade level. Each student was shown to have the potential to improve with respect to those dimensions which were then low.

According to differentiated abilities an SOI modal instructional program was organized to the specified needs of each of the twenty-six students in this fourth grade at Solano School. This program was based on individual grade level scores obtained from the SOI-LA Test.

A post SOI-LA Test was administered to determine the needs of the anticipated achievement for each student in each of the subtests below grade level. Based on this project, it was shown that students of high potential and high achievement still have certain weaknesses that can be brought to a higher level.

CHAPTER TWO

PERFORMANCE OBJECTIVES

II. PERFORMANCE OBJECTIVES

Following a four month remediation program, each of the target fourth grade students, when administered a Structure of the Intellect-Learning Abilities SOI-LA post test, will have reached the expected level of attainment in 100% of the subtests of which was below grade level as shown in Table 3 of Expected Attainment.(See Appendix D, Table 3, page 69 .)

CHAPTER THREE

REVIEW OF LITERATURE

III. REVIEW OF LITERATURE

Research to develop the strategy for the identification of learning abilities of high achievers and for an accompanying program of learning was conducted by a review of literature. The inability of a child to perform a task at a given time is the real issue. If specific techniques, general theories, and models are to be useful in education, then the information provided must be organized into a systematic framework. One way of accomplishing this organization is to search for commonalities that have practical value for education within the differentiated learning abilities of each student with demonstrated high potential.

The global and unitary conception of human intelligence as a general mental energy has been exploded by the advent of J.P. Guilford's Structure-of-Intellect theory (Guilford 1960, 1967, 1975). For the past twenty years, Guilford has guided the multivariate experimental methods at the Aptitudes Research Project, University of Southern California, and succeeded in identifying nearly one hundred different types of intelligence (Guilford 1969).

J. P. Guilford of the University of Southern California developed a three dimentional model to conceptualize intelligence which was called the "Structure of Intellect".[1] This model emerged over a period of years during which measurements of intellectual abilities of innumerable students were subject to factor analysis. He found that the intellectual factors

[1]Guilford, J.P., The Nature of Human Intelligence, New York, McGraw-Hill Book Company, 1967.

consistently arranged themselves into three patterns or parameters. These were named operations, content, and products. Also he found that certain major categories of factors manifested themselves within each of the broad patterns. Guilford's concepts about the structure of the intellect may be described as follows:

1. The first and major pattern consists of operations (kinds of abilities.) According to test results, there are five primary divisions of intellectual operations. That is to say, each operation is based on an ability to perform a task involving (1)cognition; (2)memory; (3)divergent thinking; (4)convergent thinking; or (5)evaluation.

2. Tasks within the operations, forming a second pattern, are found to be composed of a figural content (as in the nature of a gestalt-for example, a picture of a tree), or of a symbolic content (numerals or notes of music), or of a semantic content (words and ideas). These factors are labeled contents (or the material of which tasks are composed.)

3. Then, depending on how the content is organized, a third pattern emerges. Each operational content can be produced as a single unit, as a classification, as a relation, as a system, as a transformation, or as an implication. The manner in which any task can be described by its three patterns is as follows: (1)Cognition (C), Memory (M), Convergent Production (N), Divergent Production (D), Evaluation (E); (2) Figural (F), Symbolic (S), Semantic(M) (3) Units (U), Classes (C), Relations (R), Systems (S), Transformations (T), Implications (I). This is a description of a task by means of three consistent patterns of intellectual factors. It can be seen that any ability can be described by three letters, reading from left to right. An example is CFU or Cognition of a Figural Unit (the ability to comprehend a single gestalt), which is one of 120 possible abilities. Better known is CMU, Cognition of a Semantic Unit, or vocabulary. Vocabulary, nevertheless, is only one of 120 predicted abilities and this fact should make it evident that many have been disturbed by unexplained variations of IQ scores.

Jean Piaget, a Swiss psychologist, investigated how intelligence is developed and how children make an acquisition of knowledge. He held that intelligence develops sequentially and hierarchically as the child interacts with the environment. Each new level is achieved after assimilation of

information acquired at a lower level.

While Guilford and Piaget organize intelligence on two different sets of dimensions, both support a delineation of intellectual processes. If the aim of education of the high achievers is the development of higher processes and functions, then a precise selection of growth supporting activities as defined by the Piaget and Guilford investigations is needed.

In clarifying the delineation of intellectual tasks several theoretical positions from literature dealing with the gifted child can serve as commonalties. Most particularly is concern of how these commonalities can be used to describe principles undergirding the developement of human potential so that objective can be based: (1) the commonalities imply a universal bond upon which intellectual assessments of the child's individual strengths and weaknesses can be based, (2) they can serve as objectives for content in the curriculum, and (3) they offer models that provide information about processes in intellectual functioning.

The psychology of intelligence and the classification of knowledge are supplemented by investigations and measurements of how children learn and how changes in performances occur. Situational studies of conditions for learning include much of the work of experts on the gifted such as that of Terman (1926, 1975) and Hollingworth (1977). There are many other contributors. From the studies conducted by these persons it has been learned that (1) there are different syndromes of giftedness; (2) gifted children achieve differentially when the teaching style is changed.

The Guilford Structure of Intellect (SOI) Model was evolved into formal theory in 1959 at the aptitudes project, USC. Intellectual abilities were extracted from test results on adults. In 1962 Meeker related IQ tests

to the Guilford Theory of Intelligence. She analyzed the Binet and Wechsler tests and made templates which translated test items to SOI factors. These were called the SOI abilities of the SOI Theory.

The application of the SI model to existing intelligence tests, such as the Stanford Binet, LM, and the Wechsler Intelligence Scale for Children(WISC), by Meeker (1963, 1965, 1969) has added to the feasibility of exploring the relationship between the SI model and various aspects of the educations process and its application. This is called the SOI by Meeker. If many of the SOI factors are existing in such school achievement predictors as the Binet and the WISC, then it is reasonable that various factors are related to academic learning.

A model such as the "Structure of Intellect" organizes observations about ability and, as such, may be used to make explicit and systematic arrangements for education. This model has been utilized by Meeker (1969) (1) to define teaching goals and sequence; (2) to analyze the protocols of standardized IQ tests: and (3) to serve as a basis for developing programs for individual students. Specifically applied to the gifted, the Guilford model defines the more complex "products," or ways of organizing information (such as systems, transformations, and implications), as well as the more abstract cognitive abilities or "operations" of divergent thinking and evaluation. Investigations into the use of "divergent production" tasks with the gifted have been documented by Torrance (1965) and Gallagher (1975).

Mary Meeker briefly describes the structure of the Intellect-Learning Abilities Test as follows:

> "The SOI-LA test was developed in late 1975. The test design was drawn from J.P. Guilford's The Nature of Human Intelligence and from technical reports issued by Guilford and others at the Psychological Laboratory at the University of Southern California. Since the tests that were developed by Guilford

and his associates were intended for an adult population, the format, content, and response mode were scaled down to a level that would be appropriated for elementary school students." [1]

The Structure of the Intellect-Learning Abilities Test contents are further developed by Mary Meeker as follows: "The SOI-LA Test incorporates twenty-four Structure of Intellect subtests; these subtests were selected (from the complete model of ninety identified abilities) for their established relationship to school learning, particularly, reading, writing, and creativity." [2]

"1.Feldman, B., "Structure-of-Intellect Factors Correlated with Reading Achievement", unpublished doctoral dissertation, University of Southern California, 1968; Leoffler, E.J., "An Extension and Partial Replication of Meyers, et. al., Primary Abilities at Mental Age Six", Society for Research in Child Development, University of California, Berkeley, 1963; Meeker, M.N., "Immediate Memory Factors and School Achievement in Ninth Grade Boys", unpublished doctoral dissertation, University of Southern California, 1966; Meyers, C.E. Orpet, A.A. Attwell, and H.F. Dignman, "Primary Mental Abilities at Mental Age Six", Monograph of the Society for Research in Child Development, 29,5, 1948: Meyers, C.E., R.E. Orpet, and A.A. Attwell, "Psychometric Examination as a Standardized Situation Yielding Personality Data", Training School Bulletin, 61, No. 2, 1964: Meyers, C.E., E.G. Sitkie, and C.A. Watts, "Further Ability Factory Hupotheses at Six Years", unpublished study, Socio-Behavior Laboratory, Pacific State Hospital, Pomona California, 1966; Orpet, R.E., and Meyers, C.E., "Factorially Established Rubrics of Observations of test Behavior", Journal of Clinical Psychology, 19, No. 3, 1963: Orpet, R.E., and C.E. Meyers, "Six Structure-of-Intellect Hypotheses in Six-Year-Old Children", Journal of Educational Psychology, 57, 1966: Schmadel, E., "The Relation of Creative Thinking Abilities to School Achievement", unpublished doctoral dissertation, University of Southern California, 1960; Sitkie, G., "Comparative Structure of Intellect in Middle and Lower

[1]Mary Meeker, SOI-LA Basic Test: Technical Data (SOI Institute: California) 1980, p. 1.

[2]Ibid., p. 1.

Class Four-Year-Old Children of Two Ethnic Groups", unpublished doctoral dissertation, University of Southern California, 1966; and Tenopyr, M., "Symbolic Memory Tests as Predictors of High-School Grade", unpublished doctoral dissertation, University of Southern California, 1966; and Tenopyr, M., "Symbolic Memory Tests as Predictors of High-School Grades", unpublished doctoral dissertation, University of Southern California, 1966." [1]

Of the twenty-four abilities, each ability consists of a combination: one operation, one product, and one kind of content. Operation deals with the five major kinds of intellectual activities or processes: memory (recall), cognition (comprehension), evaluation, convergent thinking (getting to the one right answer), and divergent thinking (creative problem solving). Content refers to the broad classes of types of information discernible by the individual, and takes the form of figural, symbolic, semantic, or behavioral representation. Products refer to the organization that the information takes as the individual processes it. The simplest products are units; others follow in sequence and each is more sophisticated than its predecessor: classes, relations, systems, transformations, and implications.

As early as 1938, John Dewey emphasized the abilities of students. "No matter how desirable it may be for students to study certain subject matter or to engage in certain activities, these will be of no avail if the materials of instruction are too far removed from the interests and abilities of the students."[2]

[1]Mary Meeker, SOI-LA Basic Test: Technical Data (SOI Institute: California) 1980, p. 3

[2]John Dewey, Experience and Education (Published in the Kappa Delta Pi lecture series by the Macmillan Company, 1938. By permission of Kappa Delta Pi.), p. 95.

Meeker has pointed out that "Divergent generation does not proceed willy-nilly; the divergent thinker is not a scatterbrain; the worthwhile generation of information requires discipline and guidance."[1]

In most traditional teaching learning situations, major emphasis is placed on locating or converging upon correct answers. Thus a great deal of instruction focuses on convergent thinking skills. Renzulli describes creativity as follows: "It is divergent production, as opposed to the convergent, one-right-answer production sought and rewarded in most classrooms. Divergent production is characterized by breaking away from conventional restrictions on thinking and letting one's mind flow across a broad range of ideas and possible solutions to a problem." [2]

Mary Meeker writes of an extensive investigation of the kinds of structure of intellect abilities children must have to be prepared for math learning.

> "It is critical that elementary and primary teachers become cognizant of the importance of Piaget constructs as they underlie mathematics. Girls, except those who have had manipulative materials in Montessori school, and or have been actively involved in sports before age 5, have very poor figural (spatial and often right brain function) abilities. Whether it is neurological, cognitive, role-modelling, socialization, or impatient parents and teacher based, we can only hope that some of the causative factors be identified early.
>
> We find that girls do beautifully in arithmetic until they hit the 9th grade. That is because they are getting by on sheer memory of facts. Then when it is necessary to use

[1]Mary Nicol Meeker, The Structure of Intellect: Its Interpretation and Uses (Columbus, Ohio: Charles E. Merrill, 1969), p. 20.

[2]Joseph S. Renzulli, "Thinking Things Up. Training for Creativity," Allyn Bacon Reading Newsletter 7 (1979), p. 1.

> the spatial underpinnings for math, they are unable to understand (cognition) spatial relationship (field independence) and become dropouts in mathematics. Later we see few girls in the hard sciences, and after school and college, we see even fewer in the professions which depend upon math, such as engineering, aeronautics, computer sciences, astrology, architecture. Contrast this with the 9 abilities necessary for reading proficiency and one can see that math skill preparations is much more complicated than that for reading." 1
>
> In summary, many students do not come to school prepared intellectually for the learning of mathematics. A test of math skills does not test the readiness. And exposure to math formally only lead to failure for those unprepared; much research indicates that IQ score is not the criterion to use for assessing math readiness, for many children with good intelligence on a general score are not intellectually prepared for math, especially girls. The use of a test which assesses these independent skills and a program for teaching the sequence of skills has been found to be very successful an approach for the teaching and learning of math." 2

Meeker summarizes as follows: "The SOI Learning Abilities (SOI-LA) Test is not a traditional intelligence test -- the purpose is not to find out, globally how intelligent a student is. It is, rather, a test of specific learning abilities which research studies since 1962 have shown form a foundational cluster for a student's learning reading and arithmetic.

[1] Mary Meeker, "The Relevance of Arithmetic Testing to Teaching Arithmetic Skills," The Gifted Child Quarterly, Vol. XXIII, No. 2 (Summer 1979), p. 301.

[2] Ibid., p. 303.

The SOI Learning Abilities test is a diagnostic instrument. It is used as the initial step in a set of procedures that will individualize instruction according to an established theory of differentiated abilities." [1]

Guilford's model of the Structure of the Intellect organizes observations about ability which may be used to make systematic and explicit arrangements for education. Mary Meeker (1969) has utilized this model (1) to define teaching goals and sequence: (2) to analyze the protocols of standarized IQ tests; and (3) to serve as a basis for developing programs for individual students. Specifically applied to the gifted, and high achievers this model defines more complex components and systems of the abilities. Meeker's Structure of the Intellect-Learning Abilities Test (1975) offers abundant information to organize curriculum around a model of intellectual abilities for each individual's differentiated abilities.

[1] Mary Meeker and Robert Meeker, SOI Learning Abilities Test Examiner's Manual (SOI Institute: California, 1979), p. 3.

In order to provide data to establish student potential, it became evident that an IQ score for each child was inevitable. The Otis-Lennon Mental Tests reveal needed information. The following is a description of the norms for performance by age of the Otis-Lennon Tests.

> One meaningful frame of reference for interpretation of scores earned on the Otis-Lennon tests is the pupil's chronological age group. When his test score is compared with the scores earned by pupils of similar chronological age tested in the standardization program, the Deviation IQ (DIQ) and its associated percentile-rank and stanine equivalent supply to the teacher, counselor, or administrator an indication of his level of performance." [1]

Here is a brief description of the Otis-Lennon Deviation IQ.

> "The Otis-Lennon Deviation IQ (DIQ) is in effect, a normalized standard score with a mean of 100 and a standard deviation of 16 points. The DIQ is an index of the pupil's relative brightness when he is compared with pupils of similar chronological age, regardless of grade placement. The Otis-Lennon DIQ reflects, at a given point in time, the pupil's ability to deal with abstract relationships involving the manipulation of ideas expressed in verbal, numerical, figural or symbolic form. The following general guide shoud be used in interpreting Otis-Lennon DIQ scores.
>
> Approximately
> 2% of pupils will obtain DIQs above 132
> 14% of pupils will obtain DIQs between 116 and 132
> 68% of pupils will obtain DIQs between 84 and 116
> 14% of pupils will obtain DIQs between 68 and 84
> 2% of pupils will obtain DIQs below 68" [2]

The percentile rank of a student can be useful in determining his/her relative position in a group.

> "The percentile rank is one of the most widely used means of interpreting pupil performance on standardized measures of ability and achievement. This particular type of derived

[1] Arthur S. Otis and Roger T. Lennon, Manual for Administration, (The Psychological Corporation. California, 1968, p. 15.

[2] Ibid., p. 15.

scores show in effect, the relative rank of a given pupil when his score is compared with those earned by pupils comprising a particular reference, or norms, group. For example, if a pupil earned a DIQ score of 116 with its corresponding percentile rank of 84, this means that 84 percent of the pupils in the norming sample earned DIQs of 116 or less, while 16 percent earned DIQs higher than 116. A DIQ score of 100 corresponds to a percentile rank of 50, representing the middle, or average, DIQ for pupils of the same age in the norming group.

Percentile-rank norms have an appeal which stems from their ease of interpretation. There are, however, certain cautions which warrant consideration in the interpretation of these scores. The units of the percentile-rank score system are not equal; for example, the difference between percentile ranks of 90 and 95 is much greater than that represented by the difference between percentile ranks of 50 and 55. This characteristic of the percentile-rank scale results from the fact that most pupil scores are concentrated near the middle of a given score distribution, while relatively few fall at the extremes. Thus, percentile ranks are useful for describing a pupil's relative position within a particular reference group, but they are not useful in expressing differences between the score of one pupil and that of another pupil." [1]

The stanine score is an indication of a student's estimated academic potential.

"Stanines are normalized standard scores having a mean of 5 and a standard deviation of 2 points. These scores are expressed as single digits ranging from a low of 1 to a high of 9, with the nine units of the stanine scale representing essentially equal distances along the base line of the curve of normal distribution. This, in effect, means that a stanine of 7 is as much better than a stanine of 6 as stanine 4 is better than 3. Figure 1 illustrates the interrelationships of Otis-Lennon DIQs, percentile ranks, and stanine numerals indicate the percentange of cases falling within each stanine.

[1]Arthur S. Otis and Roger T. Lennon, Manual for Administration, (The Psychological Corporation, California, 1968, p. 16.

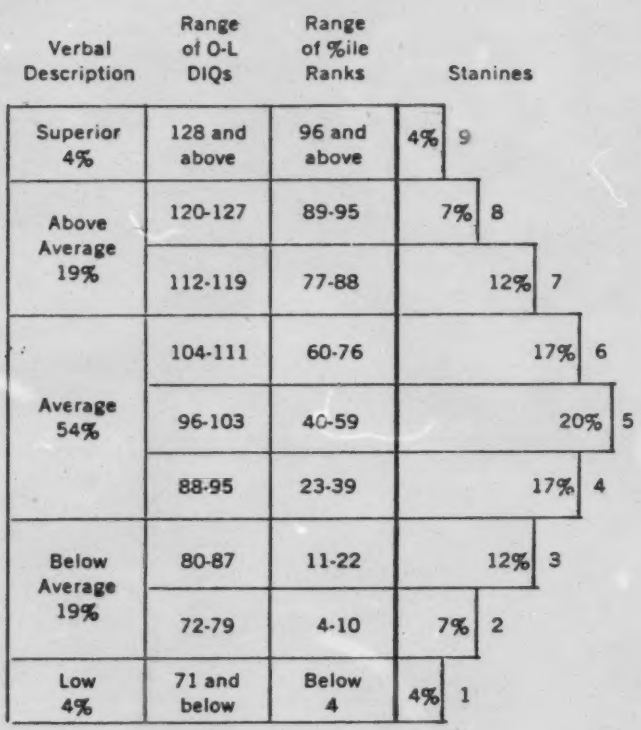


FIGURE 1. Relationship Among Otis-Lennon DIQs, Percentile Ranks, and Stanines

Stanines corresponding to Otis-Lennon DIQ scores indicate a given pupil's level of general abstract reasoning ability when he is compared with other pupils of the same chronological age. A pupil earning a stanine of 7,8,or 9 performed well above the typical pupil of the same age, while a pupil earning a stanine of 1,2, or 3 performed well below the typical pupil of his age on this test. The nine stanine levels thus represent nine levels of brightness or learning potential. These groupings are somewhat broader than the units comprising the DIQ and percentile-rank scales. Stanines possess somewhat greater stability, and their use reduces the likelihood of misinterpretation stemming from small, unreliable differences between DIQ or percentile-rank scores.

In general, the characteristics of the stanine scale are such that it is recommended as the most desirable method of interpreting performance on the Otis-Lennon tests. Stanines are particularly recommended for use where teachers or counselors find it desirable to report an indication of a pupil's academic potential in rather broad, general terms." [1]

[1]Arther S. Otis and Roger T. Lennon, Manual for Administration, (The Psychological Corporation, California, 1968, p. 16.

CHAPTER FOUR

STRATEGY SELECTED

IV. STRATEGY SELECTED

A fourth grade classroom of twenty-six students who had been previously grouped homogeneously for instruction were selected as the target group to receive the SOI-LA Test.

The SOI-LA pre-test was administered and scored. The raw scores were charted into an individual profile to show the grade level for each student for each of the twenty-four subtests. (See appendix A, page 38 .)

These SOI-LA grade level scores for each of the twenty-six students were placed into two tables. One table showed each student's score for each of the twenty-four subtests that was above grade level (4.0). (See appendix B, table 1, page 65.) The other table showed each student's score for each of the twenty-four subtests that was below grade level. (4.0) (See appendix C, table 2, page 67.) Each of the subtests below fourth grade level (4.0) was noted as a weakness of learning ability for each student.

Data which supported the potential for each student's improvement was gathered and recorded in tabular form. An Otis-Lennon Mental Ability Test, Elementary II Form J, was administered and scored. These test results, an Otis Lennon Deviation I.Q. (D.I.Q.) score, an Otis Lennon percentile score, and an Otis Lennon stanine score, were recorded in table 3 (See appendix D, table 3, page 69.) Other data collected and recorded included the following: (1) attendance and absence record, (2) chronological age, and (3) teacher remarks concerning behavior patterns of each of the students.

The information of each student from the SOI-LA twenty-four subtests by strengths and weakness in contrast to the information of each student's

potential consequently provided the basis to develop a specified level of expected attainment. Thus, a goal for each student's achievement was established to show a specified expected gain in 100% of the weak subtests for each student. (See appendix D, table 3, page 69.)

This anticipated gain was measured after a four month intervention program, which was taught in twenty minute periods, three times a week. The program was set up as a diagnosis of the individual weaknesses found in the results of the SOI-LA pretest. The weaknesses were defined as those subtests which were below grade level 4.0 as shown in table 2. (See appendix C, table 2, page 67.) The individual program used the related SOI curriculum materials.

The materials included five general ability sourcebooks, exercise sheet sets, a set of creative response cards and a memory handbook. Each of these was constructed for the remediation of a specific operation and was coded from easy to difficult levels. See specific skills for each sourcebook as follows:

1. Cognition - to develop comprehension skills
2. Memory - to develop memory skills
3. Evaluation - to develop judgment and planning skills
4. Convergent Production - to develop school knowledge and work skills
5. Divergent Production - to develop creativity skills

The creative Response Cards were to encourage divergent production through oral and written language. The Memory Handbook was for training memory skills.

The specific five SOI operations of cognition, memory, evaluation, convergent production, and divergent production with their respective objectives, definitions, and teaching techniques constituted the bulk of the program. (See pages 22 to 26 and the Glossary of factor definitions, p.106.)

	CODE	OBJECTIVES	SOI FACTOR DEFINITIONS	TEACHER TECHNIQUES
	CFU	To develop the ability to recognize a figural entity, that is to "close" figural information or perceive a complete visual form	Identify objects by name visually and auditorially	What is it? Describe it to me
	CFC	To develop the ability to recognize classes of figural items of information	Classifies perceived objects	Which sounds (shapes) are alike?
	CFR	To develop the ability to recognize figural relations between forms	Discover relations in perceptual material	Which shapes go together?
	CFS	To develop the ability to comprehend arrangements and positions of visual objects in space	Perceives spatial patterns and maintains orientation	Listen and repeat
	CFT	To develop the ability to visualize how a given figure or object will appear after given changes (unfolding or rotation)	Manipulates or transforms objects into another visual arrangement	Find one like this but turned
	CFI	To develop the ability to foresee the consequences involved in figural problems	Explores visually ways to select most effective action	Mazes and other visual puzzles
C	CSU	To develop the ability to recognize graphic symbolic units such as words	Distinguish between words, letters, visual cues and numbers	Correct misspelled words
O	CSC	To develop the ability to recognize common properties in sets of symbolic information	Discovers complex relationships, patterns or systems with symbols	Alphabetizing
G	CSR	To develop the ability to see relations between items of symbolic information	Discovers relations involving letter patterns	Letter relationships
N	CSS	To develop the ability to understand the systematic interrelatedness of symbols within an organized set	Discover complex relationships forming patterns	Filing
I	CST	To develop the ability to recognize that a specific transformation of symbolic information has occurred	Determine when and if change has occurred in words, phrases, numbers, etc.	Spoonerism
T	CSI	To develop the ability to foresee or be sensitive to consequences in a symbolic form	Predict the effects of symbolic problems	Number concepts, puzzles
I	CMU	To develop the ability to comprehend the meanings of words and ideas	Decode and realize the intent of words and concepts	Word definitions
O	CMC	To develop the ability to recognize common properties of words, ideas and objects	Identify classes of words	Classifying words and ideas
N	CMR	To develop the ability to see relations between ideas or meanings of words	Discovers relations in conceptual, abstract meanings	Word analogies
	CMS	To develop the ability to comprehend relatively complex ideas-meanings of words	Comprehend or structure problems in preparation for solution	Arithmetic reasoning, sequencing words
	CMT	To develop the ability to see potential changes of interpretations of objects and situations	Sees several meanings to a given word or expression	Synonyms, rebus lists
	CMI	To develop the ability to anticipate or be sensitive to the needs/consequences of situation in meaningful	Anticipates needs or consequences of a given situation	Implied meanings from partial information

MEMORY

CODE	OBJECTIVES	SOI FACTOR DEFINITIONS	TEACHER TECHNIQUES
MFU	To develop the ability to remember given figural objects.	Recalls materials learned by visual and auditory presentation	Memory of places on a map.
MFC	To develop the ability to remember previously presented classes of figural materials visual, auditory or kinesthetic	Recalls classes of figural materials	Recall classes assigned to objects
MFR	To develop the ability to memorize relations between items of figural information	Recalls associations between figural items	Recall of figures paired for associated reason
MFS	To develop the ability to remember the spatial order or placement of given visual information	Recalls arrangement of objects previously presented	Memory for tapped out rhythm or dance steps.
MFT	To develop the ability to remember a previously observed figural transformation	Memory for transformations of figural material previously changed	Paper folding positions.
MFI	To develop the ability to remember arbitrary connections between figural items of information	Recalls unstructured connections between figural data	Recall of figures paired for no associated reason
MSU	To develop the ability to remember isolated items of symbolic information such as syllables and words	Recalls for immediate production after 1 presentation a series of numerals or letters	Short term recall of numbers or letters forward
MSC	To develop the ability to remember symbolic class properties	Recalls unique character of classes	Memory for number classes.
MSR	To develop the ability to remember definitive connections between units of symbolic information	Recalls definitions or specific descriptors	Memory for names.
MSS	To develop the ability to remember the order of symbolic information	Memory for a system of numerals, symbols, or letters	Digits backwards.
MST	To develop the aiblity to remember changes in symbolic information	Recalls differences symbolic data	Correct misspelled words.
MSI	To develop the ability to remember arbitrary connections between symbols	Memory for well-practiced number operations	Computation facts.
MMU	To develop the ability to remember isolated ideas or word meanings	Reproduces previously presented ideas or words	Recall words seen and removed
MMC	To develop the ability to remember verbal or ideational class properties	Recalls words and ideas via unique classes	Recall classes of words shown and removed
MMR	To develop the ability to remember meaningful connections between items of verbal information	Remembers meaningful pairs of words	Memory for names.
MMS	To develop the ability to remember meaningful verbal information	Remembers order of materials or events presented visually or auditorially	Recall ideas in a story.
MMT	To develop the ability to remember changes in meaning or redefinitions	Recalls differences in definition or redefinitions	Homonyms.
MMI	To develop the ability to remember arbitrary connections between pairs or meaningful elements of information	Recalls unstructured relationships between 2 sets of data	Matching bits of information with previously studied concepts.

CODE	OBJECTIVES	SOI FACTOR DEFINITIONS	TEACHER TECHNIQUES
EFU	To develop the ability to judge units of figural information as being similar or different	Ability to identify identical forms.	Are these alike or different? Find the same one.
EFC	To develop the ability to judge whether figural units are properly classified.	to analyze how units are classified and then judge how other units are similarly classified.	Select a pair of figures or properties which best fit prescribed conditions.
EFR	To develop the ability to evaluate figural relations	Ability to evaluate figural relationships.	Find figure-parts which meet relativ requirements
EFS	To develop the ability to evaluate and decipher systems composed of figures.	Ability to evaluate and decipher systems, beginnings, and ends	Find missing portions of pictures
EFT	To develop the ability to judge or analyze how a given figure or object will appear after certain changes have been made, such as folding, rotation, etc.	Visualizes spatial rotations and juxtaposition	Find the same figure among others in a different position
EFI	To develop the ability to evaluate the adequacy or consistency of implied lines to complete a given form from a series	Sensitivity to problems, spatial; seeing defects and deficiencies and suggesting improvements	Magic squares; chess plays
ESU	To develop the ability to make rapid decisions regarding the identification of letter or number sets	Chooses discreet classes or units from a group of discreet classes or units	Select specified letters or numbers from a group.
ESC	To develop the ability to judge the applicability of class properties of symbolic information	Judging of a class in which to place numbers, letters, or signs	Identify same and different words or number series.
ESR	To develop the ability to make choices among symbolic relationships of similarity and consistency in Kiven letters or numbers.	Can decide which symbolic relations are consistent with others in a series	Select word pairs from others with letter sequences.
ESS	To develop the ability to estimate the appropriateness of aspects of a symbolic system	Discriminates between like members of a discreet class and those outside parameters.	Select a number which is incorrect a sequence of numbers
EST	To develop the ability to judge whether or not an ordering or substitute symbols is adequate.	Juxtaposition of units of meaning to produce new units of meaning.	Make new words from a given word
ESI	To develop the ability to judge whether there is consistency of, probability of, or inferences from given symbolic information.	Determines adequacy of symbolic data	Abbreviate words; reading map symbo
EMU	To develop the ability to make judgements about the suitability or adequacy of ideas and word meanings in terms of meeting given criteria	Ability to apply varied word meanings	Evaluate whether meanings of words the same or different; batch a word a picture
EMC	To develop the ability to judge applicability of class properties of semantic information	Discriminates between symbolic units of similar or like configuration	Classify concepts which mean the sa as a given word
EMR	To develop the ability to make choices among semantic relationships based on the similiarty and consistency of meaning	Uses logical relationships in testing correctness of conclusion	Circle the word that does not belon
EMS	To develop the ability to judge the internal consistency of a complex of meaningful information	Appraises aspects of common situations in terms of experience	Cross out sentences which don't ma sense.
EMT	To develop the ability to judge which objects or ideas could best be transformed or redefined in order to meet new requirements.	Can apply practical judgement about ideas	Substitute one alphabet for another or translate from one to the other.
EMI	To develop the ability to judge the adequacy of a meaningful deduction.	Adjudges the meaningfulness of a given conclusion	What's foolish about this statement

CONVERGENT

CODE	OBJECTIVES	SOI FACTOR DEFINITIONS	TEACHER TECHNIQUES
NFU	To develop the ability to produce figures from simple specifications	Ability to comprehend and reproduce an observed bit of behavior	Reproduce configurations upon presentation (eye-hand motor skill)
NFC	To develop the ability to classify, uniquely or conventionally items of figural information	Ability to sort or classify	Classify these pictures (things) according to shape, size, color, etc.
NFR	To develop the ability to deduce figural relations	Ability to deduce figural relationships	Construct this kind of block design
NFS	To develop the ability to reproduce a system of figural design.	Reproduces a system of figural design	String these beads according to this design
NFT	To develop the ability to break down given figural units to form new ones.	Ability to divide figural units into components and produce new ones	Camouflaged and hidden pictures
NFI	To develop the ability to solve simple equations in terms of familiar forms	Ability to solve simple equations in terms of familiar forms	Sequence these pictures
NSU	To develop the ability to reproduce, as patterned, specific single symbols	Generate basic simple symbols	Make contractions out of these words, write these symbols
NSC	To develop the ability to classify uniquely items of symbolic information	Categorize discreetly symbolic data	Classify these numbers (letters) according to condition
NSR	To develop the ability to complete a specified symbolic relationship	Finds nonverbal response to fulfill a given relationship between numerals or letters	Crossword puzzles; equations
NSS	To develop the ability to produce a fully determined order or sequence of symbols	States the order of symbolic systems from start to goal correctly	Translating codes
NST	To develop the ability to produce new symbolic items of information by revising given names	Generate novel symbolic units by restructuring given items.	Camouflaged letters and numbers
NSU	To produce a completely determined symbolic deduction from given symbolic information where the implication has not been practiced.	Substitutes or derives symbols as expected	Solving math problems (without words)
NMU	To develop the ability to converge on an appropriate name (or summarizing word) for any given information	Ability to state correct names of concepts and ideas	Giving correct name (concept) to a series
NMC	To develop the ability to produce verbally meaningful classes under specific conditions and restrictions	Forms correct groups from a large number of words or objects	Classifying tasks associated with job
NMR	To develop the ability to produce a word or idea that conforms to specific relationship requirements	Ability to correlate semantic representation	Identifying parts of speech.
NMS	To develop the ability to order information into a verbally meaningful sequence	Arranges objects or events into a meaningful sequence	Sequencing cartoon strips and/or sentences correctly in a paragraph.
NMT	To develop the ability to produce new uses for objects by taking them out of their given context and redefining them	Shifts function of objects or part of something to use in a new way	Reconciling oppositional words.
NMI	To develop the ability to deduce meaningful information implicit in the given information	Ability to state the correct deduction from given facts	Implied meanings to words, sentences

CODE	OBJECTIVES	SOI FACTOR DEFINITIONS	TEACHER TECHNIQUES
DFU	To develop the ability to produce many figures conforming to simple specifications	Generates unique structures from common materials	Make other things from this paper clay, etc.
DFC	To develop the ability to group figural information in different ways	Reclassifies perceived objects in different ways	Classify items in many ways.
DFR	To develop the ability to generate relations between figural items, relations which must be arrived at uniquely and organized constructively	Produces figural units via novel responses	Tie dyeing; make new faces from different parts.
DFS	To develop the ability to produce composites of figural information in many ways	Generates closure of disparate units in a variety of modes	Use shapes to make new designs.
DFT	To develop the ability to process figural information in revised ways	Responds to figural stimuli via new responses	Find the hidden shape in a picture; match stick problems.
DFI	To develop the ability to elaborate on figural information	Amplifies on basic figural data	Make a picture out of a squiggle.
DSU	To develop the ability to produce many symbolic units which conform to simple specifications not involving meanings.	Produces words fulfilling specified structural requirements	Make many words with an a in the middle
DSC	To develop the ability to group items of symbolic information in different ways	Restructures discreet classes of items in novel forms.	Classify letters or numbers in many ways
DSR	To develop the ability to relate letters and numbers in many different ways	Generates a variety of relations between numbers or letters	Solving equations where any number can be used (commutation)
DSS	To develop the ability to organize sets of symbolic information into different systematic arrangements	Produces symbolic systems in unique ways	Write many sentences with this sequence of letters to begin each word a t o
DST	To develop the ability to generate new ideas from well-known concepts.	Divergent production of transformations made to symbolic material	Make a new word with the ending letter of a word
DSI	To develop the ability to produce varied implications from given symbolic information	Generates new relationships between discreet classes of data	Write new equations.
DMU	To develop the ability to produce many elementary ideas appropriate to given requirements	Ability to call up many ideas in a specified class	Say or write many words beginning with a selected letter in one minute.
DMC	To develop the ability to produce many categories of ideas appropriate in meaning to a given idea.	Devises open-ended hypothetical deductive-thinking mode	List things that _____ (move) (utensils)
DMR	To develop the ability to produce many relationships appropriate in meaning to a given idea.	Produces words from given words as synonyms, or as associated words	Rhyming
DMS	To develop the ability to organize words in various meaningful complex ideas.	Analogical completions	Write poems
DMT	To develop the ability to produce unusual, remote or clever responses involving reinterpretations or new emphasis on some aspect of an object or situation.	Ability to produce remotely associated, clever or uncommon responses	Puns
DMI	To develop the ability to produce many antecedents, concurrents, or consequences of given information.	Specifies details that develop a scheme or variation of an idea	What would happen if _____.

The level at which programming began was determined by the age-level equivalent at which the student was operating on the weakest dimension. To give an example: if the specific SOI was CFU, this ability was found in the appropriate sourcebook and exercises were selected appropriate to the student's level of functioning. If a selected task appeared too difficult or too easy for a given student, then tasks were selected at a higher or lower number, whichever was appropriate (e.g. CFU - 1 was the easiest; CFU - 12 was the most difficult). The success factor thus generated was very important.

The classroom teacher instructed each of the students in the regular classroom. The support team of the psychologist and learning disabilities teacher gave assistance in arrangement and organization of the materials.

At the end of the four month program the students were administered the SOI-LA post test. After the tests were scored, the results were placed in table 4. (See appendix E, table 4, page 73.) Table 4 showed the actual growth for each student in years and months of the subtests in which the anticipated growth was reached.

General success of the project was analyzed accordingly with the attainment of expected achievement goals. Comparison of the SOI-LA pre-subtest scores which was below grade level (4.0), was completed with the post-subtest scores for each student. (See appendix E, table 4,p.73). The individual total attained subtest scores were tabulated showing the entire class attainment after the intervention program. (See appendix F, table 5,p.100.) Comparison of the post-subtests anticipated achievement was made for those students who had the 0.5 months expectation. (See appendix G, table 6,p.102 .)

CHAPTER FIVE

EVALUATION

V. EVALUATION

1. Results of the SOI-LA post test, after the four months intervention program, were researched to ascertain if each of the students reached the expected level of attainment in 100% of the subtests which was below grade level as shown in the Table of Expected Attainment. (See appendix D, table 3, page 69.)

The evaluation of the practicum objective is documented in tabular form. Comparison of the SOI-LA pre-subtest scores with the post-subtest scores for each student is shown in table 4. (See appendix E, table 4, page 73.) To show the entire group of twenty-six students, this data from each student is placed in table 5 (see appendix F, table 5, page 100.)

All of the students equaled or excelled the 100% anticipated attainment in the post-subtest results. Four of the students excelled all of the anticipated attainment in the post-subtest results. The objective was exceeded.

CHAPTER SIX

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

VI. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Based on the evaluation of this practicum, the project to develop and implement a model for the identification and remediation of weaknesses in the learning abilities of children with demonstrated high potential was highly successful.

Summary

The data in table 4 and table 5 indicate that all of the students equaled or excelled their 100% anticipated attainment in the post-subtest results. (See appendix E, table 4, page 73 .) A closer look reveals that four of the students excelled all of the anticipated post-subtests while the remaining twenty-two students excelled the anticipated achievement in 50% or more of the post-subtests.

It is interesting to note that of the eleven students with the lower anticipated achievement, all but number 11, had a lower D.I.Q. score of only 105-116. The student number 11, had a D.I.Q. score of 121, but exhibited extreme misbehavior and poor work attention as reported by the teacher. Nine of the ten students who had lower D.I.Q. scores of only 105-116, reached only the anticipated achievement in at least one or more of the post-subtests. Student number 7, who was not only the youngest in the class of twenty-six, but had a D.I.Q. of 108, reached only the anticipated achievement in three of the post-subtests. It may be concluded then, that a lower D.I.Q., being younger in age, with reported misbehavioral factors was fair indication of lower achievement in this intervention program.

Conclusions

Numerous factors contributed to the success of this model for the identification and remediation of weaknesses in the learning abilities of children with demonstrated high potential.

The SOI-LA test was successfully used to identify student strengths and weaknesses. Anticipated achievement was correctly identified by consideration of the following indicators: (1) the Otis-Lennon Deviation IQ (D.I.Q.), (2) the Otis-Lennon stanine and percentile scores, (3) age of the student (younger as a deficit), (4) excessive absences, (5) number of SOI-LA pre-subtests above or below grade level (4.0), (6) and other behavioral factors as reported by the classroom teacher. Several identifiable factors contributed to the teacher's high level of motivation to successfully complete this program.

Many were giving support and attention to this project: the writer of this project who is a district level administrator, the principal, the support staff of school psychologist, and learning disability teacher. Since a successful teacher is one selected for new or pilot model programs, selection becomes a notation of success. The teacher had expressed a need to improve the learning of students who were reaching success in daily curriculum work.

Completing the SOI-LA was in itself a learning experience for the students. New dimensions and task considerations were inherently taught as the test was administered. Student challenges which were cast in completion of the subtests of the SOI-LA, became motivational devices for the learning exercises that matched the tasks of the subtests.

The participating teacher found the materials challenging because answers were not provided and much of the procedure was left to the teacher's

own creativity and imagination. The lack of answers was at times discouraging to the teacher, because this caused much extra time in planning for instruction and follow-up evaluation.

Continuous monitoring by this writer, as well as formal and informal meetings with the teacher and principal and the school psychologist and the learning disabilities teacher, insured the smooth implementation of this model.

Recommendations

1. The success of this program warrants a continuation into the next year's fourth grade top homogenous classroom.
2. Further inservice should be offered to the other fourth grade district teachers of the top homogeneous classrooms.
3. Participating teachers should be encouraged to identify the weaknesses and strengths of the high achieving students with demonstrated high potential by following the model of this practicum.

CHAPTER SEVEN

DISSEMINATION

VII. DISSEMINATION

A report of this model at a district administrative staff meeting in June 1980, made it district knowledge with thorough detail to those who may wish to transport it into their grades at the various schools. At a one-week workshop which was conducted for all district teachers of gifted, this model was presented. Training was given to all fourth grade teachers in the model as presented in this practicum. Plans were made to include it as a route for curriculum that is commensurate with the development of individual differentiated intellectual abilities of the identified fourth grade gifted students in Osborn District.

CHAPTER EIGHT

INSTITUTIONALIZATION

VIII. INSTITUTIONALIZATION

When this year's introductory model program was concluded and its evaluation was finished, the question was answered as to what is the reasonable expectation in terms of expected level of attainment for other high-achieving students in other fourth grades receiving the same treatment of identificaiton and instruction. The next step was to propose that its replica be planned into next year's top fourth grade at Solano School. Procedure for getting this plan accepted included a full report at a regular district administrative staff meeting and instruction in a one-week workshop. The report included a summary of this practicum with a recommendation that the outline would be carried to next year's curriculum at Solano School. Thus, it became a regular part of the system.

APPENDIX A

STUDENT GRAPHS OF PRE-SUBTEST AND POST-SUBTEST SCORES BY GRADE FROM THE SOI-LA TEST

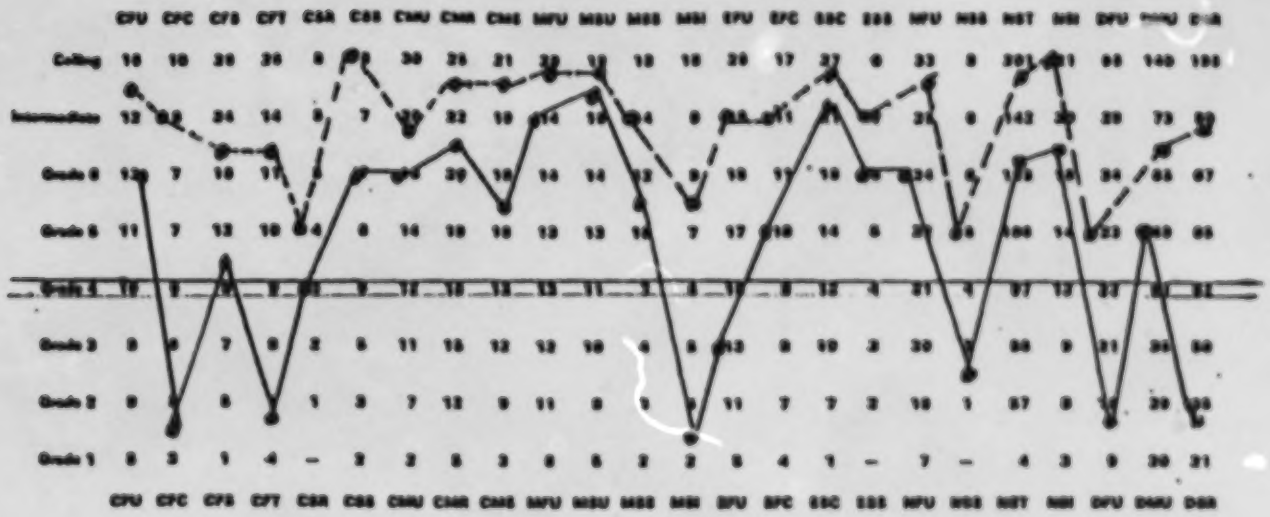
STRUCTURE OF THE INTELLECT LEARNING ABILITIES TEST
GRAPH OF ATTAINED SCORES BY GRADE
FROM A TOP HOMOGENEOUS GROUP OF FOURTH GRADE STUDENTS
SOLANO SCHOOL, OSBORN SCHOOL DISTRICT #8
PHOENIX, ARIZONA

January 23, 1980
May 20, 1980

STUDENT # 1

SCORES BY GRADE FOR THE SOI-LA TEST

TABLES OF EVALUATION FOR THE SOI-LA BASIC TEST



Pre-Test, January 23, 1980_____
Post-Test, May 20, 1980 ------

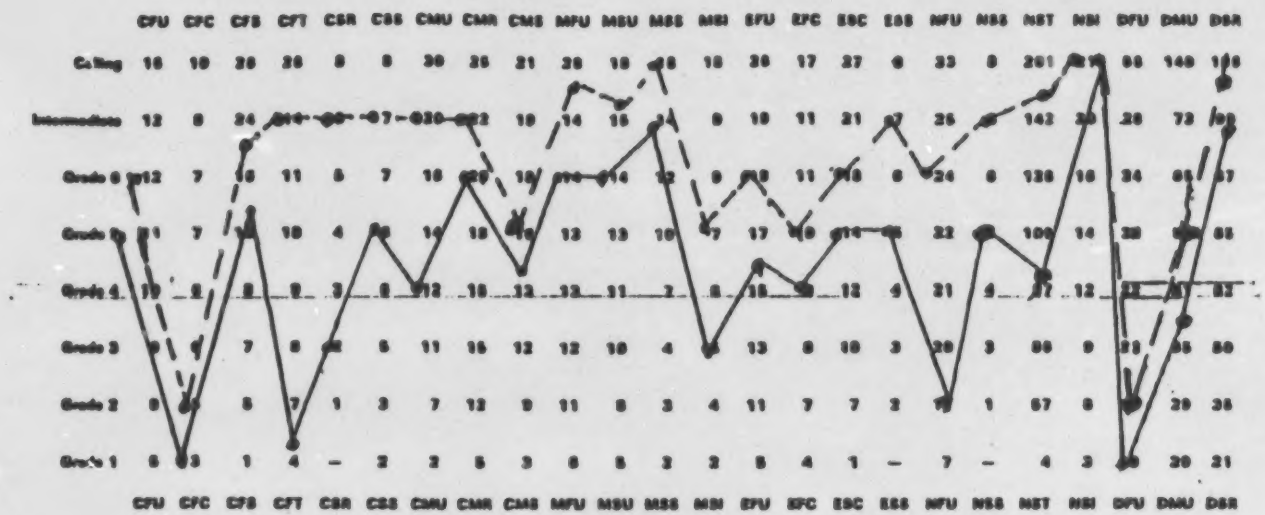
STRUCTURE OF THE INTELLECT LEARNING ABILITIES TEST
GRAPH OF ATTAINED SCORES BY GRADE
FROM A TOP HOMOGENEOUS GROUP OF FOURTH GRADE STUDENTS
SOLANO SCHOOL, OSBORN SCHOOL DISTRICT #8
PHOENIX, ARIZONA

January 23, 1980
May 20, 1980

STUDENT # 2

SCORES BY GRADE FOR THE SOI-LA TEST

TABLES OF EVALUATION FOR THE SOI-LA BASIC TEST


CFU CFC CFS CFT CSR CSS CMU CMR CMS MFU MSU MSS MSI EFU EFC ESC ESS MFU NSS NST NSI DFU DMU DSR
Ceiling
Intermediate
Grade 6
Grade 5
Grade 4
Grade 3
Grade 2
Grade 1
CFU CFC CFS CFT CSR CSS CMU CMR CMS MFU MSU MSS MSI EFU EFC ESC ESS MFU NSS NST NSI DFU DMU DSR

56

Pre-Test, January 23, 1980_____
Post-Test, May 20, 1980 ------

55

40

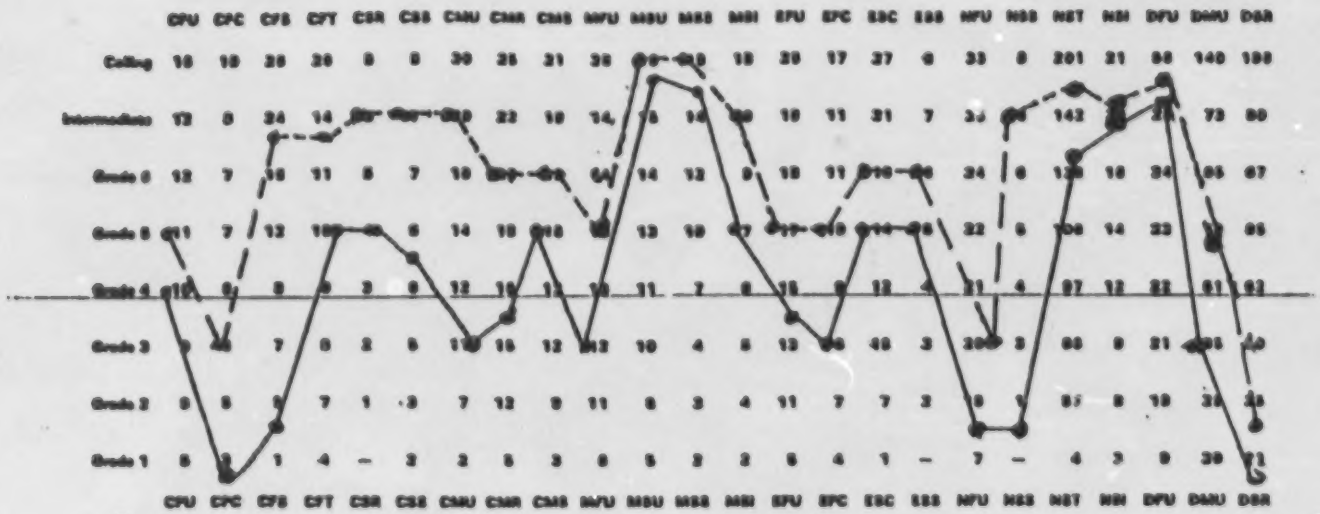
STRUCTURE OF THE INTELLECT LEARNING ABILITIES TEST
GRAPH OF ATTAINED SCORES BY GRADE
FROM A TOP HOMOGENEOUS GROUP OF FOURTH GRADE STUDENTS
SOLANO SCHOOL, OSBORN SCHOOL DISTRICT #8
PHOENIX, ARIZONA

January 23, 1980
May 20, 1980

STUDENT # 3

SCORES BY GRADE FOR THE SOI-LA TEST

TABLES OF EVALUATION FOR THE SOI-LA BASIC TEST


CFU CFC CFS CFT CSR CSS CMU CMR CMS MFU MBU MSS MSI EFU EFC ESC ESS MFU MSS MST MSI DFU DMU DSS
Ceiling
Intermediate
Grade 6
Grade 5
Grade 4
Grade 3
Grade 2
Grade 1
CFU CFC CFS CFT CSR CSS CMU CMR CMS MFU MBU MSS MSI EFU EFC ESC ESS MFU MSS MST MSI DFU DMU DSS

Pre-Test, January 23, 1980_____

Post-Test, May 20, 1980 ------

57

58

41

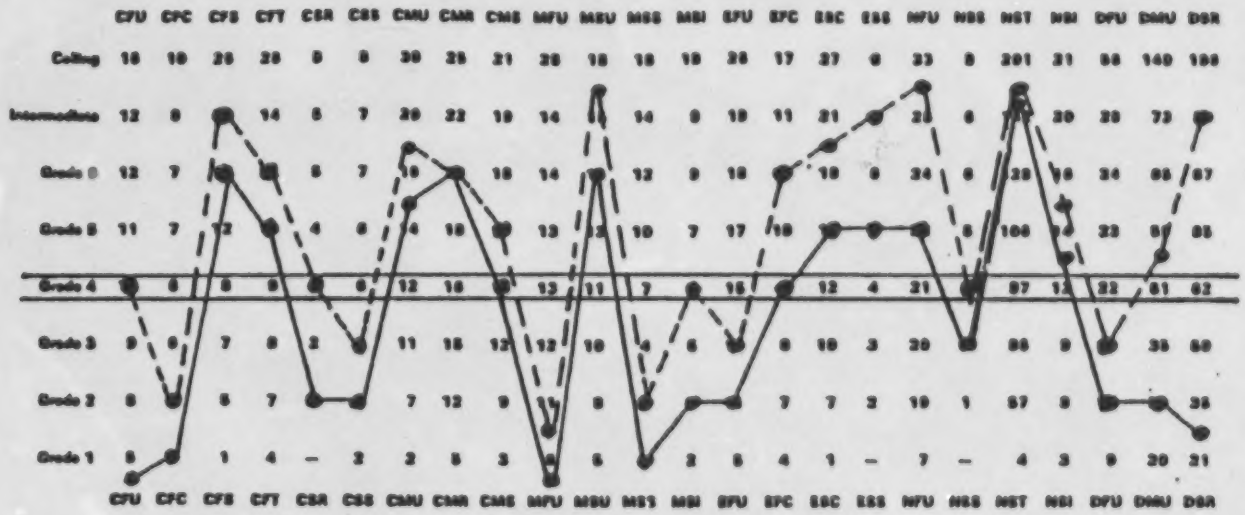
STRUCTURE OF THE INTELLECT LEARNING ABILITIES TEST
GRAPH OF ATTAINED SCORES BY GRADE
FROM A TOP HOMOGENEOUS GROUP OF FOURTH GRADE STUDENTS
SOLANO SCHOOL, OSBORN SCHOOL DISTRICT #8
PHOENIX, ARIZONA

January 23, 1980
May 20, 1980

STUDENT # 4

SCORES BY GRADE FOR THE SOI-LA TEST

TABLES OF EVALUATION FOR THE SOI-LA BASIC TEST



Pre-Test, January 23, 1980_____
Post-Test, May 20, 1980 ------

59

60

42

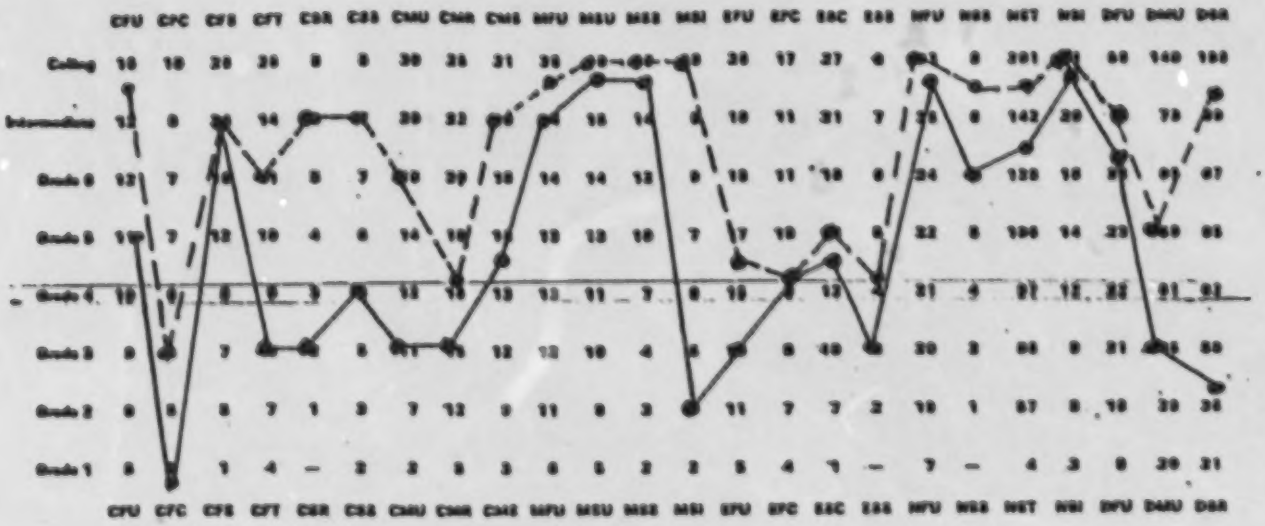
STRUCTURE OF THE INTELLECT LEARNING ABILITIES TEST
GRAPH OF ATTAINED SCORES BY GRADE
FROM A TOP HOMOGENEOUS GROUP OF FOURTH GRADE STUDENTS
SOLANO SCHOOL, OSBORN SCHOOL DISTRICT #8
PHOENIX, ARIZONA

January 23, 1980
May 20, 1980

STUDENT # 5

SCORES BY GRADE FOR THE SOI-LA TEST

TABLES OF EVALUATION FOR THE SOI-LA BASIC TEST



Pre-Test, January 23, 1980_____
Post-Test, May 20, 1980 ------

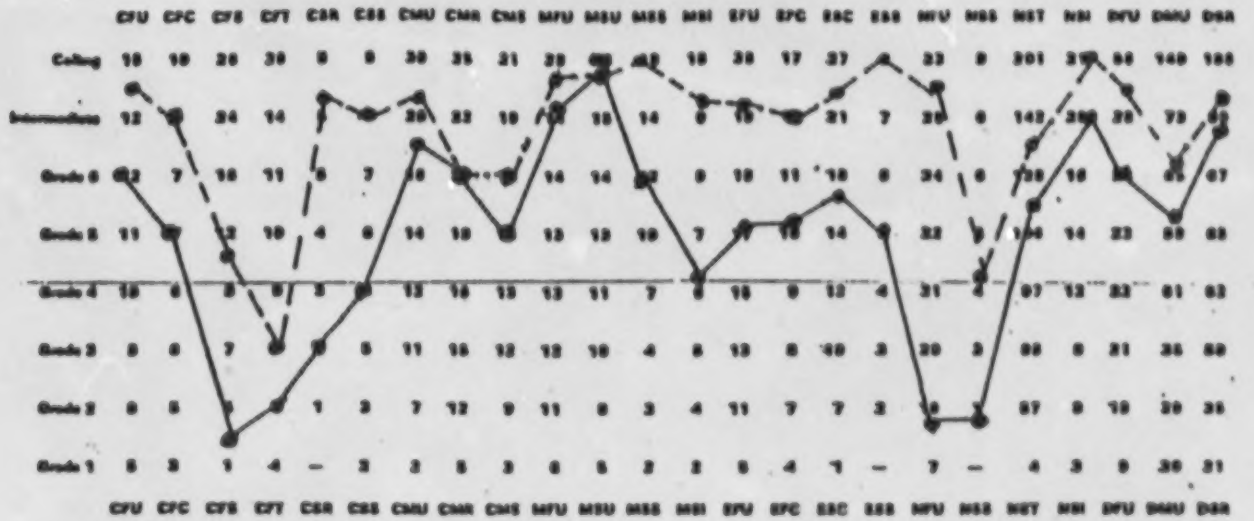
STRUCTURE OF THE INTELLECT LEARNING ABILITIES TEST
GRAPH OF ATTAINED SCORES BY GRADE
FROM A TOP HOMOGENEOUS GROUP OF FOURTH GRADE STUDENTS
SOLANO SCHOOL, OSBORN SCHOOL DISTRICT #8
PHOENIX, ARIZONA

January 23, 1980
May 20, 1980

STUDENT # 6

SCORES BY GRADE FOR THE SOI-LA TEST

TABLES OF EVALUATION FOR THE SOI-LA BASIC TEST


CFU CFC CFS CFT CSR CSS CMU CMR CMS MFU MSU MSS MSI EFU EFC ESC ESS MFU MSS MST MSI DFU DMU DSR
CFU CFC CFS CFT CSR CSS CMU CMR CMS MFU MSU MSS MSI EFU EFC ESC ESS MFU MSS MST MSI DFU DMU DSR

Pre-Test, January 23, 1980_____

Post-Test, May 20, 1980 ------

63

64

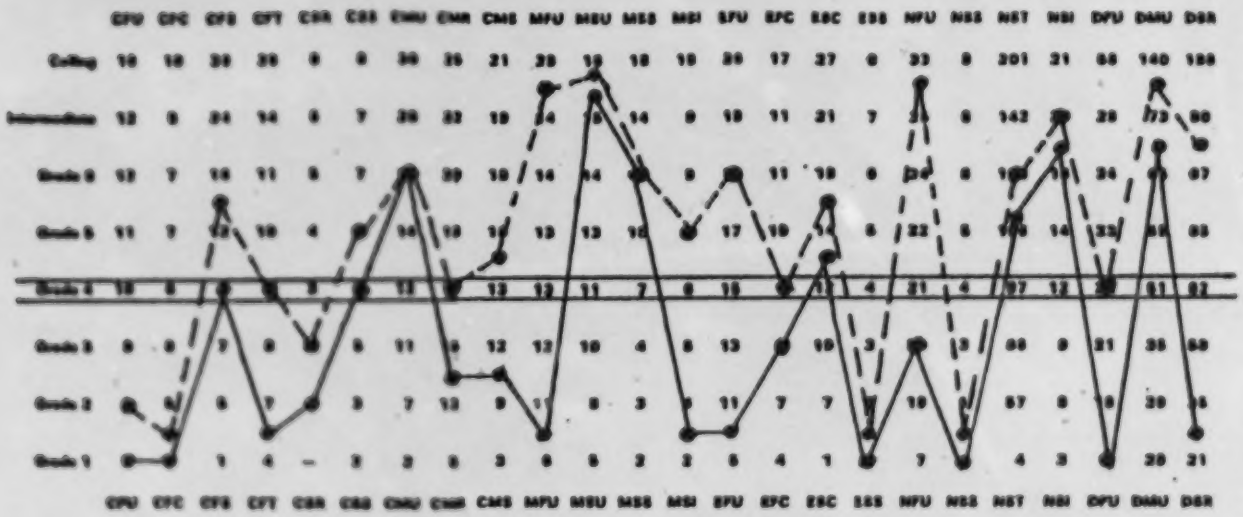
STRUCTURE OF THE INTELLECT LEARNING ABILITIES TEST
GRAPH OF ATTAINED SCORES BY GRADE
FROM A TOP HOMOGENEOUS GROUP OF FOURTH GRADE STUDENTS
SOLANO SCHOOL, OSBORN SCHOOL DISTRICT #8
PHOENIX, ARIZONA

January 23, 1980
May 20, 1980

STUDENT # 7

SCORES BY GRADE FOR THE SOI-LA TEST

TABLES OF EVALUATION FOR THE SOI-LA BASIC TEST


CFU CFC CFS CFT CSR CSS CMU CMR CMS MFU MSU MSS MSI EFU EFC ESC ESS NFU NSS NST NSI DFU DMU DSR
College
Intermediate
Grade 8
Grade 5
Grade 4
Grade 3
Grade 2
Grade 1
CFU CFC CFS CFT CSR CSS CMU CMR CMS MFU MSU MSS MSI EFU EFC ESC ESS NFU NSS NST NSI DFU DMU DSR

Pre-Test, January 23, 1980_____
Post-Test, May 20, 1980 ------

65

66

45

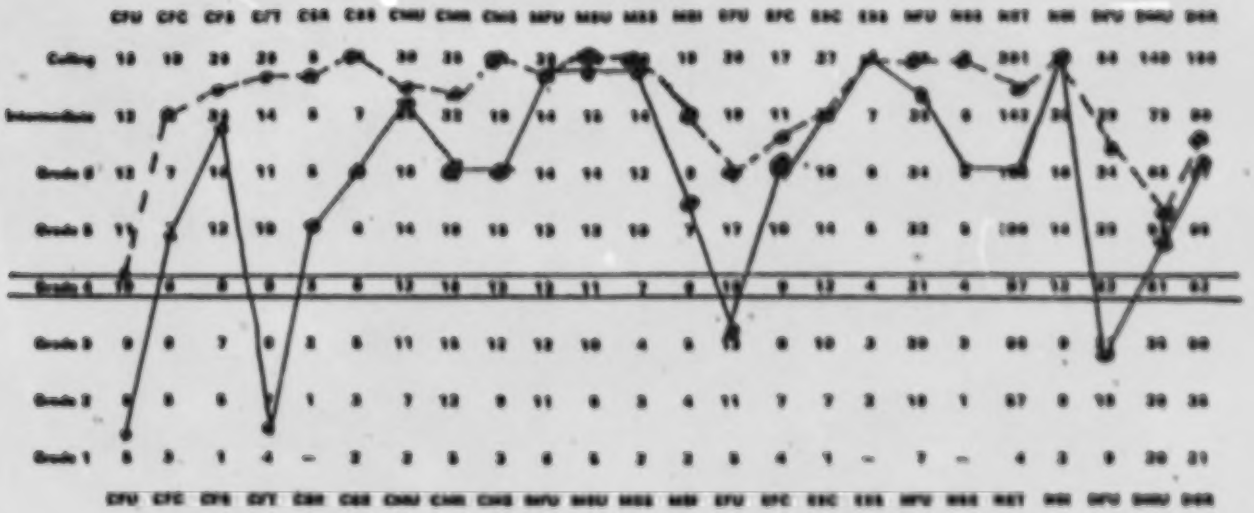
STRUCTURE OF THE INTELLECT LEARNING ABILITIES TEST
GRAPH OF ATTAINED SCORES BY GRADE
FROM A TOP HOMOGENEOUS GROUP OF FOURTH GRADE STUDENTS
SOLANO SCHOOL, OSBORN SCHOOL DISTRICT #8
PHOENIX, ARIZONA

January 23, 1980
May 20, 1980

STUDENT # 8

SCORES BY GRADE FOR THE SOI-LA TEST

TABLES OF EVALUATION FOR THE SOI-LA BASIC TEST



Pre-Test, January 23, 1980_____
Post-Test, May 20, 1980 ------

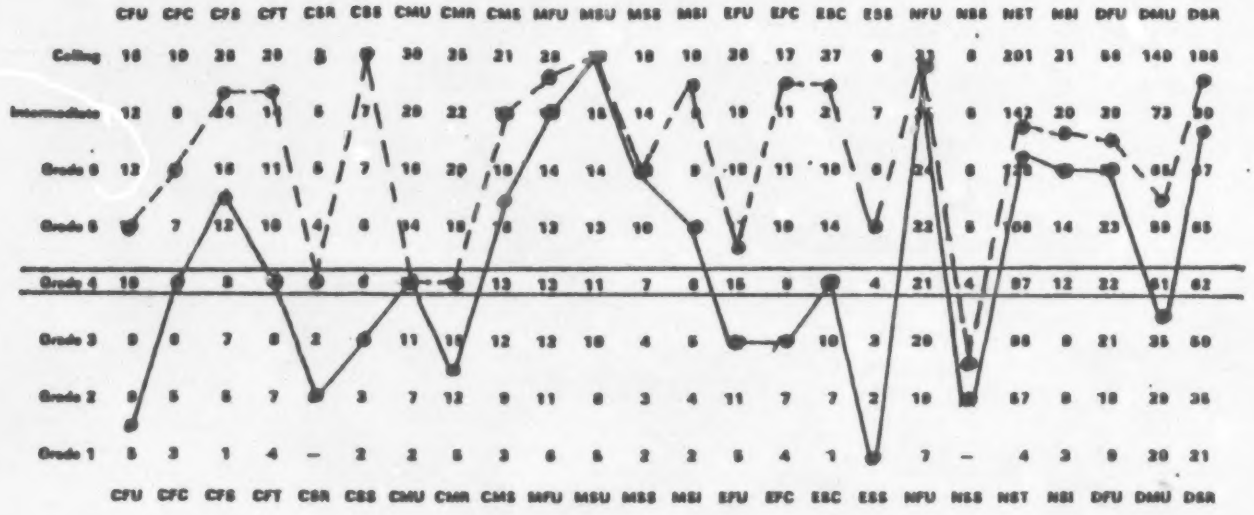
STRUCTURE OF THE INTELLECT LEARNING ABILITIES TEST
GRAPH OF ATTAINED SCORES BY GRADE
FROM A TOP HOMOGENEOUS GROUP OF FOURTH GRADE STUDENTS
SOLANO SCHOOL, OSBORN SCHOOL DISTRICT #8
PHOENIX, ARIZONA

January 23, 1980
May 20, 1980

STUDENT # 9

SCORES BY GRADE FOR THE SOI-LA TEST

TABLES OF EVALUATION FOR THE SOI-LA BASIC TEST


CFU CFC CFS CFT CSR CSS CMU CMR CMS MFU MSU MSS MSI EFU EFC ESC ESS NFU NSS NST NSI DFU DMU DSR
Ceiling
Intermediate
Grade 6
Grade 5
Grade 4
Grade 3
Grade 2
Grade 1

Pre-Test, January 23, 1980_____

Post-Test, May 20, 1980 ------

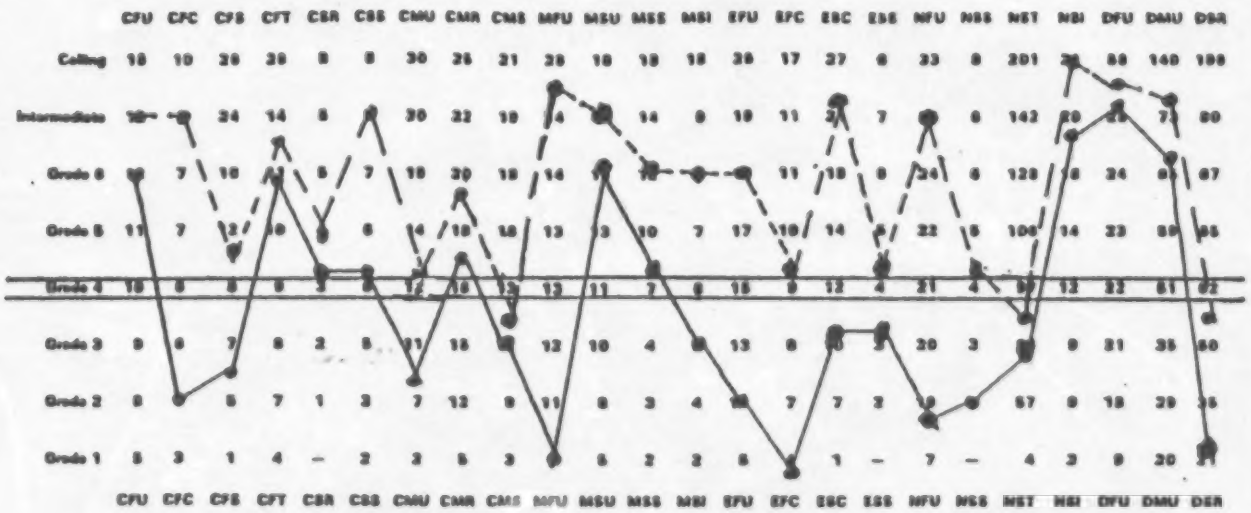
STRUCTURE OF THE INTELLECT LEARNING ABILITIES TEST
GRAPH OF ATTAINED SCORES BY GRADE
FROM A TOP HOMOGENEOUS GROUP OF FOURTH GRADE STUDENTS
SOLANO SCHOOL, OSBORN SCHOOL DISTRICT #8
PHOENIX, ARIZONA

January 23, 1980
May 20, 1980

STUDENT # 10

SCORES BY GRADE FOR THE SOI-LA TEST

TABLES OF EVALUATION FOR THE SOI-LA BASIC TEST


CFU CFC CFS CFT CSR CSS CMU CMR CMS MFU MSU MSS MSI EFU EFC ESC ESS NFU NSS NST NSI DFU DMU DSR
Ceiling
Intermediate
Grade 6
Grade 5
Grade 4
Grade 3
Grade 2
Grade 1
CFU CFC CFS CFT CSR CSS CMU CMR CMS MFU MSU MSS MSI EFU EFC ESC ESS NFU NSS NST NSI DFU DMU DSR

Pre-Test, January 23, 1980_____

Post-Test, May 20, 1980 ------

71

72

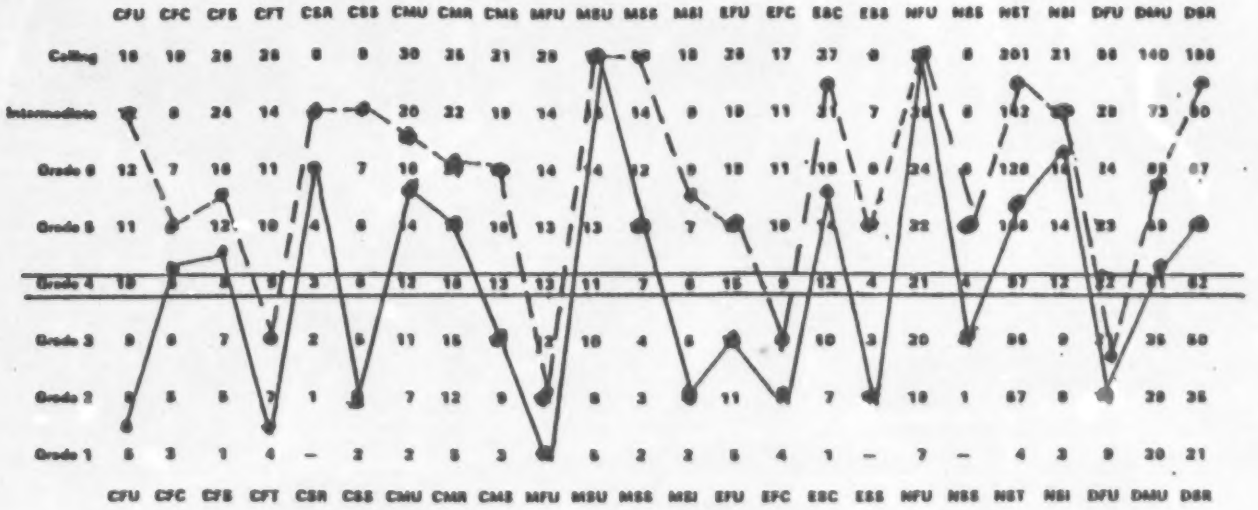
STRUCTURE OF THE INTELLECT LEARNING ABILITIES TEST
GRAPH OF ATTAINED SCORES BY GRADE
FROM A TOP HOMOGENEOUS GROUP OF FOURTH GRADE STUDENTS
SOLANO SCHOOL, OSBORN SCHOOL DISTRICT #8
PHOENIX, ARIZONA

January 23, 1980
May 20, 1980

STUDENT # 11

SCORES BY GRADE FOR THE SOI-LA TEST

TABLES OF EVALUATION FOR THE SOI-LA BASIC TEST



Pre-Test, January 23, 1980_____

Post-Test, May 20, 1980 ------

73

74

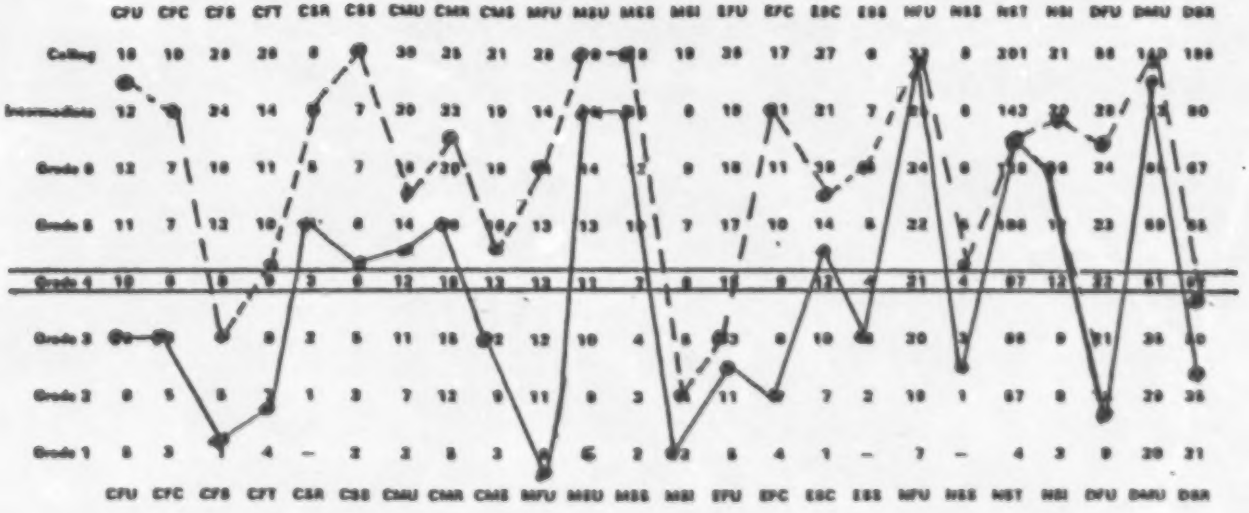
STRUCTURE OF THE INTELLECT LEARNING ABILITIES TEST
GRAPH OF ATTAINED SCORES BY GRADE
FROM A TOP HOMOGENEOUS GROUP OF FOURTH GRADE STUDENTS
SOLANO SCHOOL, OSBORN SCHOOL DISTRICT #8
PHOENIX, ARIZONA

January 23, 1980
May 20, 1980

STUDENT # 12

SCORES BY GRADE FOR THE SOI-LA TEST

TABLES OF EVALUATION FOR THE SOI-LA BASIC TEST


CFU CFC CFS CFT CSR CSS CMU CMR CMS MFU MSU MSS MSI EFU EFC ESC ESS MFU NSS NST NSI DFU DMU DSR
Ceiling
Intermediate
Grade 6
Grade 5
Grade 4
Grade 3
Grade 2
Grade 1
CFU CFC CFS CFT CSR CSS CMU CMR CMS MFU MSU MSS MSI EFU EFC ESC ESS MFU NSS NST NSI DFU DMU DSR

Pre-Test, January 23, 1980_____

Post-Test, May 20, 1980 ------

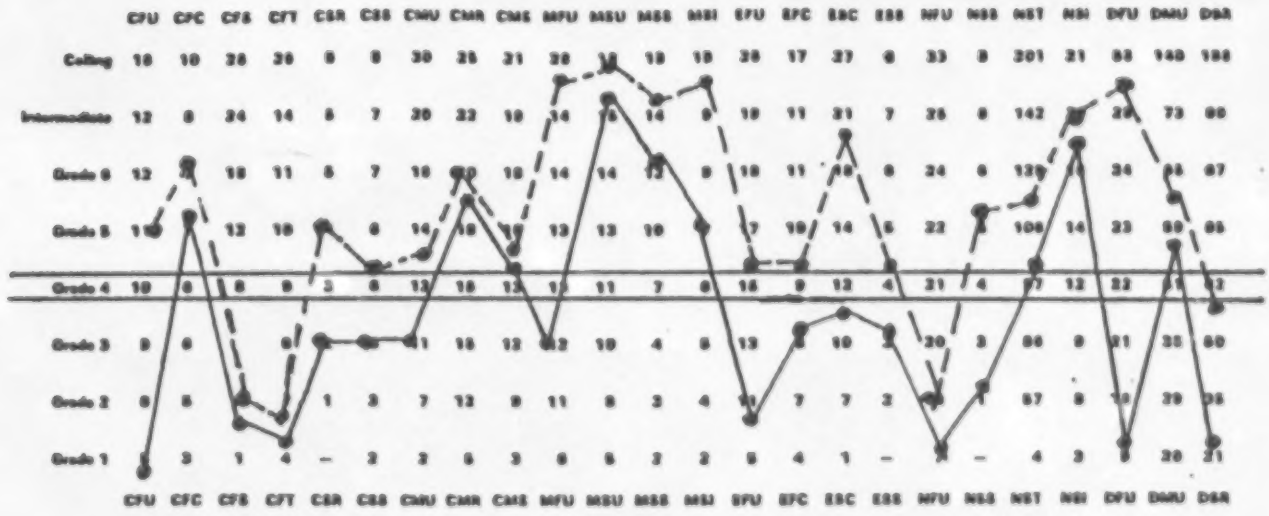
STRUCTURE OF THE INTELLECT LEARNING ABILITIES TEST
GRAPH OF ATTAINED SCORES BY GRADE
FROM A TOP HOMOGENEOUS GROUP OF FOURTH GRADE STUDENTS
SOLANO SCHOOL, OSBORN SCHOOL DISTRICT #8
PHOENIX, ARIZONA

January 23, 1980
May 20, 1980

STUDENT # 13

SCORES BY GRADE FOR THE SOI-LA TEST

TABLES OF EVALUATION FOR THE SOI-LA BASIC TEST


CFU CFC CFS CFT CSR CSS CMU CMR CMS MFU MSU MSS MSI EFU EFC ESC ESS MFU NSS NST NSI DFU DMU DSR
Ceiling
Intermediate
Grade 6
Grade 5
Grade 4
Grade 3
Grade 2
Grade 1
CFU CFC CFS CFT CSR CSS CMU CMR CMS MFU MSU MSS MSI EFU EFC ESC ESS MFU NSS NST NSI DFU DMU DSR

Pre-Test, January 23, 1980_____

Post-Test, May 20, 1980 ------

77

78

51

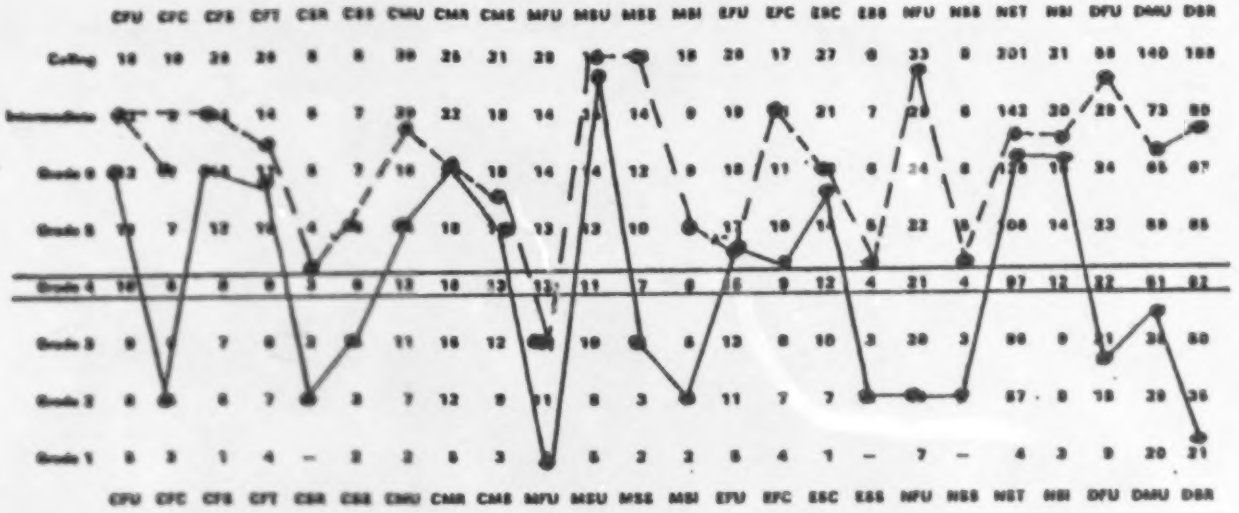
STRUCTURE OF THE INTELLECT LEARNING ABILITIES TEST
GRAPH OF ATTAINED SCORES BY GRADE
FROM A TOP HOMOGENEOUS GROUP OF FOURTH GRADE STUDENTS
SOLANO SCHOOL, OSBORN SCHOOL DISTRICT #8
PHOENIX, ARIZONA

January 23, 1980
May 20, 1980

STUDENT # 14

SCORES BY GRADE FOR THE SOI-LA TEST

TABLES OF EVALUATION FOR THE SOI-LA BASIC TEST


CFU CFC CFS CFT CSR CSS CMU CMR CMS MFU MSU MSS MSI EFU EFC ESC ESS MFU NSS NST NSI DFU DMU DSR
Ceiling
Intermediate
Grade 6
Grade 5
Grade 4
Grade 3
Grade 2
Grade 1
CFU CFC CFS CFT CSR CSS CMU CMR CMS MFU MSU MSS MSI EFU EFC ESC ESS MFU NSS NST NSI DFU DMU DSR

Pre-Test, January 23, 1980_____

Post-Test, May 20, 1980 ------

73

80

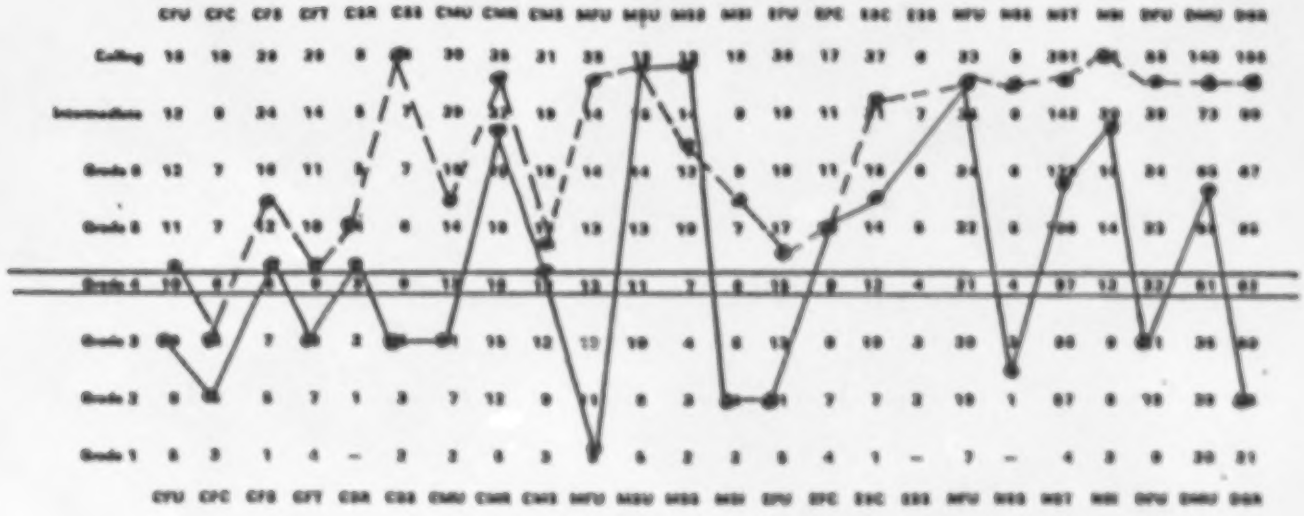
STRUCTURE OF THE INTELLECT LEARNING ABILITIES TEST
GRAPH OF ATTAINED SCORES BY GRADE
FROM A TOP HOMOGENEOUS GROUP OF FOURTH GRADE STUDENTS
SOLANO SCHOOL, OSBORN SCHOOL DISTRICT #8
PHOENIX, ARIZONA

January 23, 1980
May 20, 1980

STUDENT # 15

SCORES BY GRADE FOR THE SOI-LA TEST

TABLES OF EVALUATION FOR THE SOI-LA BASIC TEST



Pre-Test, January 23, 1980_____
Post-Test, May 20, 1980 ------

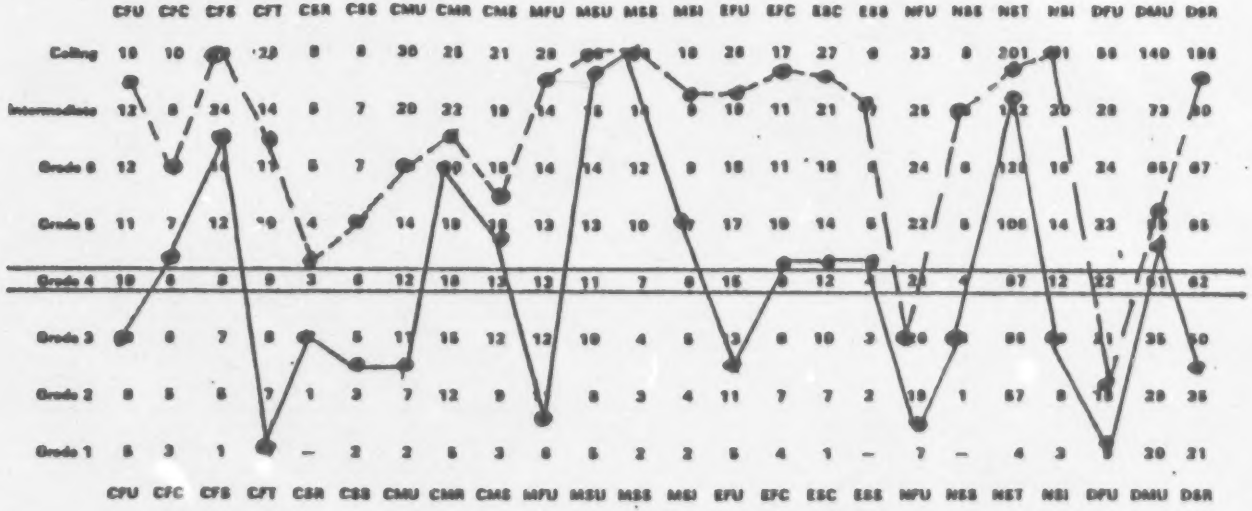
STRUCTURE OF THE INTELLECT LEARNING ABILITIES TEST
GRAPH OF ATTAINED SCORES BY GRADE
FROM A TOP HOMOGENEOUS GROUP OF FOURTH GRADE STUDENTS
SOLANO SCHOOL, OSBORN SCHOOL DISTRICT #8
PHOENIX, ARIZONA

January 23, 1980
May 20, 1980

STUDENT # 16

SCORES BY GRADE FOR THE SOI-LA TEST

TABLES OF EVALUATION FOR THE SOI-LA BASIC TEST


CFU CFC CFS CFT CSR CSS CMU CMR CMS MFU MSU MSS MSI EFU EFC ESC ESS MFU NSS NST NSI DFU DMU DSR
Ceiling
Intermediate
Grade 6
Grade 5
Grade 4
Grade 3
Grade 2
Grade 1
CFU CFC CFS CFT CSR CSS CMU CMR CMS MFU MSU MSS MSI EFU EFC ESC ESS MFU NSS NST NSI DFU DMU DSR

Pre-Test, January 23, 1980_____

Post-Test, May 20, 1980 ------

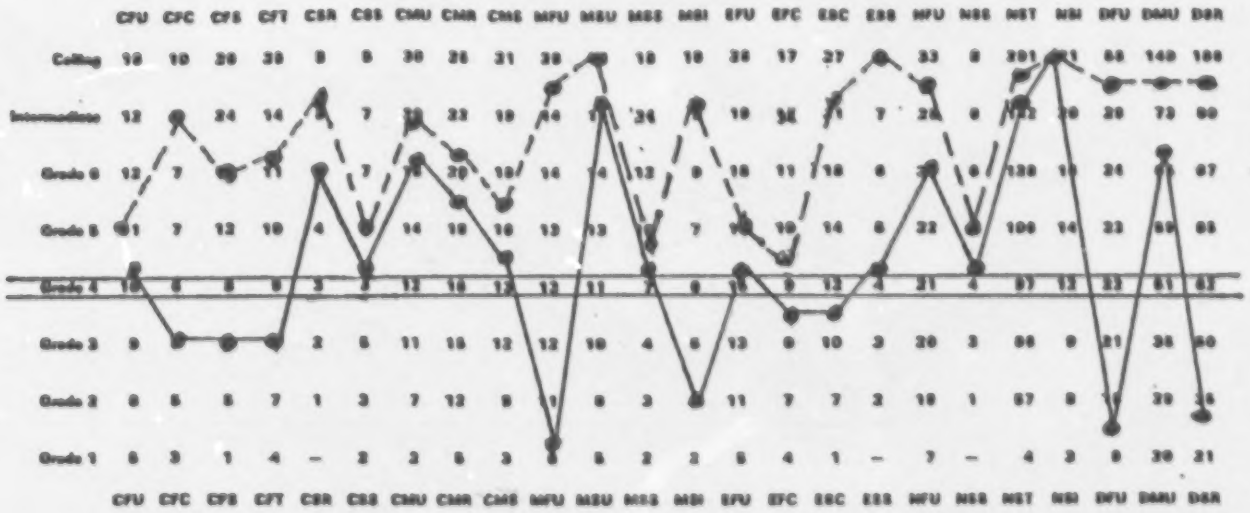
STRUCTURE OF THE INTELLECT LEARNING ABILITIES TEST
GRAPH OF ATTAINED SCORES BY GRADE
FROM A TOP HOMOGENEOUS GROUP OF FOURTH GRADE STUDENTS
SOLANO SCHOOL, OSBORN SCHOOL DISTRICT #8
PHOENIX, ARIZONA

January 23, 1980
May 20, 1980

STUDENT # 17

SCORES BY GRADE FOR THE SOI-LA TEST

TABLES OF EVALUATION FOR THE SOI-LA BASIC TEST


CFU CFC CFS CFT CSR CSS CMU CMR CMS MFU MSU MSS MSI EFU EFC ESC ESS MFU NSS NST NSI DFU DMU DSR
Ceiling
Intermediate
Grade 6
Grade 5
Grade 4
Grade 3
Grade 2
Grade 1

Pre-Test, January 23, 1980_____

Post-Test, May 20, 1980 ------

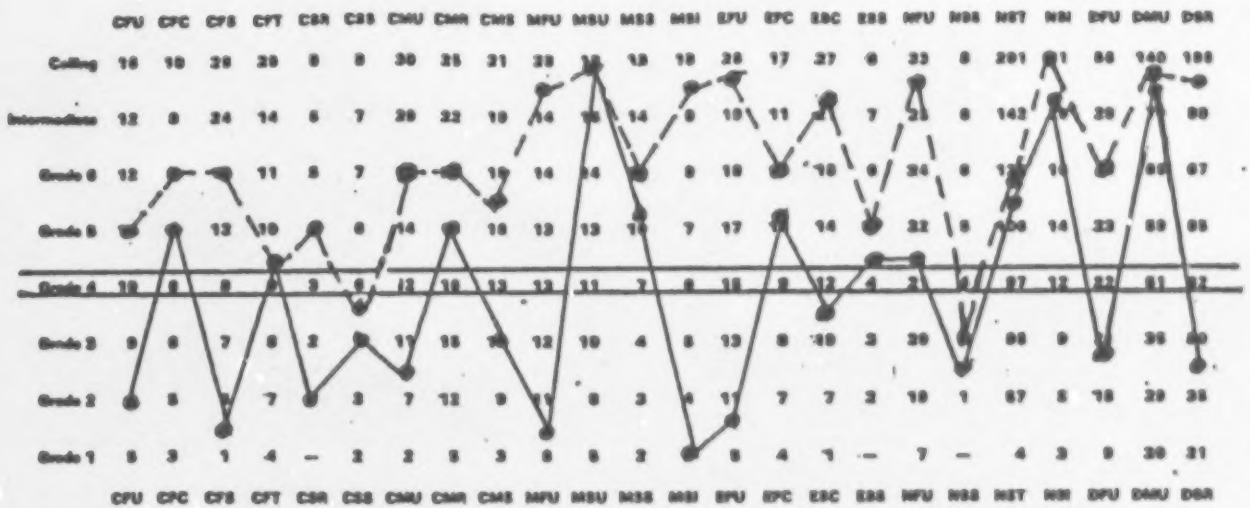
STRUCTURE OF THE INTELLECT LEARNING ABILITIES TEST
GRAPH OF ATTAINED SCORES BY GRADE
FROM A TOP HOMOGENEOUS GROUP OF FOURTH GRADE STUDENTS
SOLANO SCHOOL, OSBORN SCHOOL DISTRICT #8
PHOENIX, ARIZONA

January 23, 1980
May 20, 1980

STUDENT # 18

SCORES BY GRADE FOR THE SOI-LA TEST

TABLES OF EVALUATION FOR THE SOI-LA BASIC TEST



Pre-Test, January 23, 1980_____
Post-Test, May 20, 1980 ------

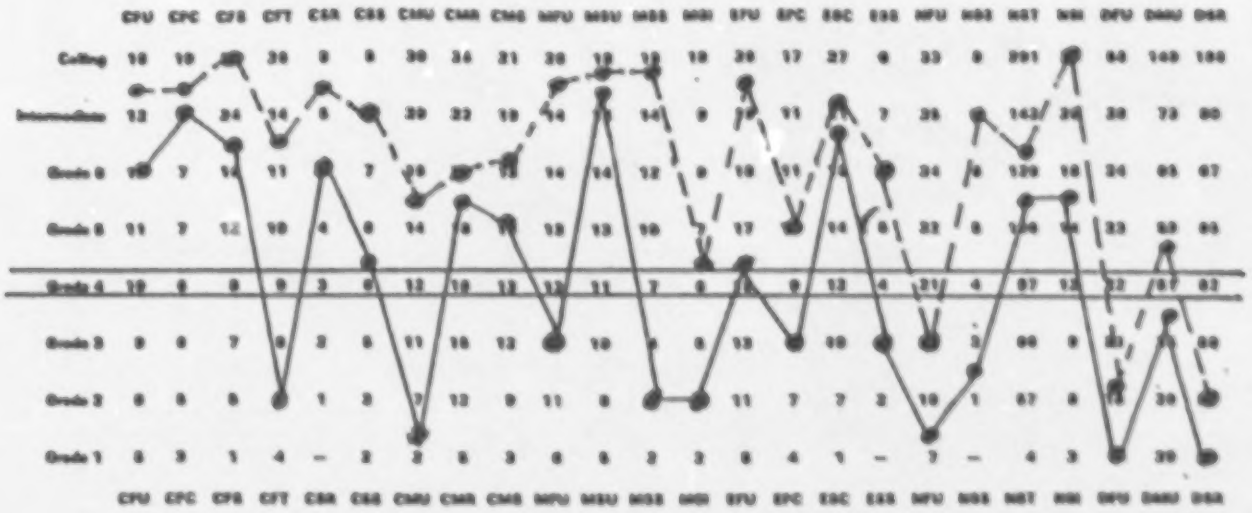
STRUCTURE OF THE INTELLECT LEARNING ABILITIES TEST
GRAPH OF ATTAINED SCORES BY GRADE
FROM A TOP HOMOGENEOUS GROUP OF FOURTH GRADE STUDENTS
SOLANO SCHOOL, OSBORN SCHOOL DISTRICT #8
PHOENIX, ARIZONA

January 23, 1980
May 20, 1980

STUDENT # 19

SCORES BY GRADE FOR THE SOI-LA TEST

TABLES OF EVALUATION FOR THE SOI-LA BASIC TEST



Pre-Test, January 23, 1980_____

Post-Test, May 20, 1980 ------

89

90

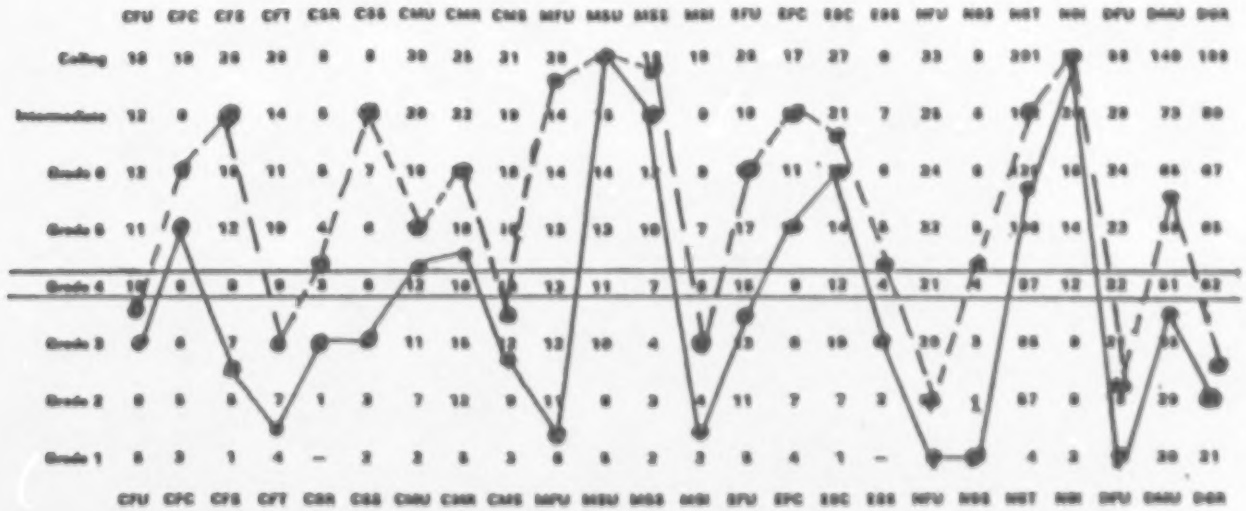
STRUCTURE OF THE INTELLECT LEARNING ABILITIES TEST
GRAPH OF ATTAINED SCORES BY GRADE
FROM A TOP HOMOGENEOUS GROUP OF FOURTH GRADE STUDENTS
SOLANO SCHOOL, OSBORN SCHOOL DISTRICT #8
PHOENIX, ARIZONA

January 23, 1980
May 20, 1980

STUDENT # 20

SCORES BY GRADE FOR THE SOI-LA TEST

TABLES OF EVALUATION FOR THE SOI-LA BASIC TEST


CFU CFC CFS CFT CSR CSS CMU CMR CMS MFU MSU MSS MSI EFU EPC EDC EDS MFU MDS MST MSI DFU DMU DSR
Ceiling
Intermediate
Grade 6
Grade 5
Grade 4
Grade 3
Grade 2
Grade 1
CFU CFC CFS CFT CSR CSS CMU CMR CMS MFU MSU MSS MSI EFU EPC EDC EDS MFU MDS MST MSI DFU DMU DSR

Pre-Test, January 23, 1980_____
Post-Test, May 20, 1980 ------

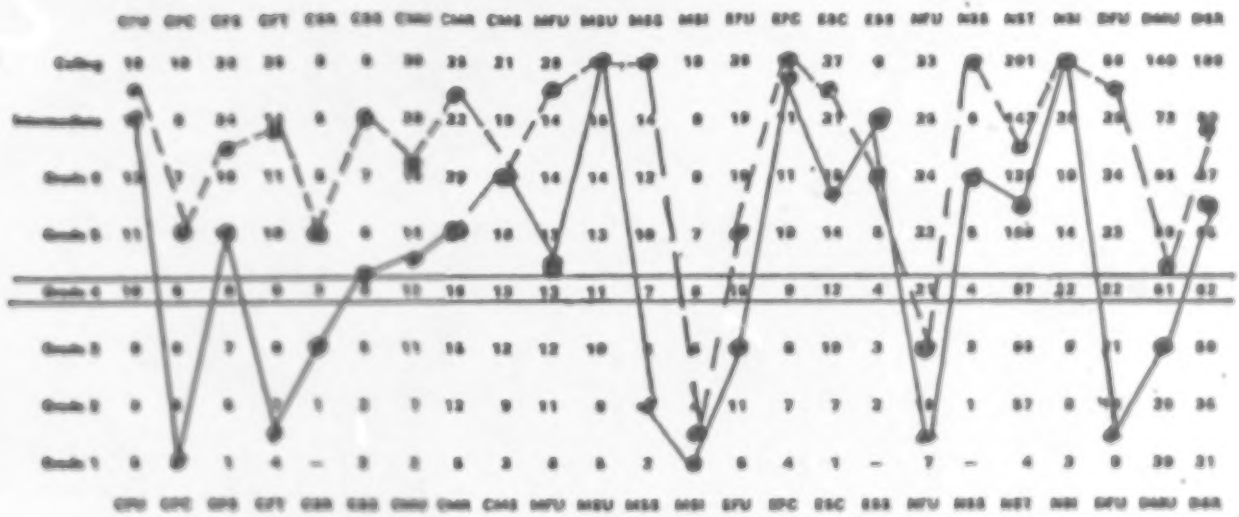
STRUCTURE OF THE INTELLECT LEARNING ABILITIES TEST
GRAPH OF ATTAINED SCORES BY GRADE
FROM A TOP HOMOGENEOUS GROUP OF FOURTH GRADE STUDENTS
SOLANO SCHOOL, OSBORN SCHOOL DISTRICT #8
PHOENIX, ARIZONA

January 23, 1980
May 20, 1980

STUDENT # 21

SCORES BY GRADE FOR THE SOI-LA TEST

TABLES OF EVALUATION FOR THE SOI-LA BASIC TEST



Pre-Test, January 23, 1980_____

Post-Test, May 20, 1980 ------

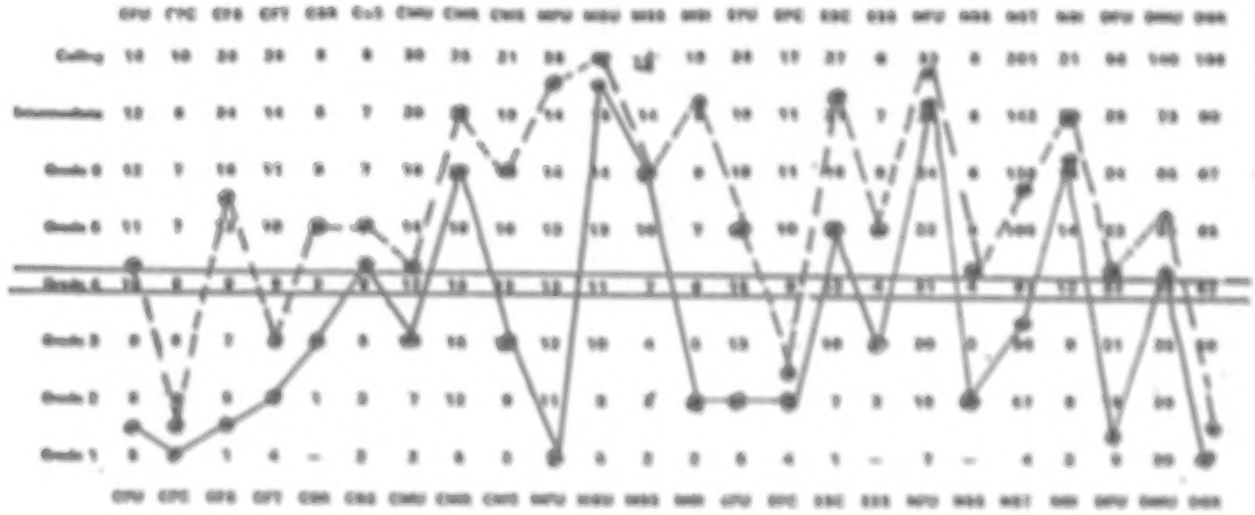
STRUCTURE OF THE INTELLECT LEARNING ABILITIES TEST
GRAPH OF ATTAINED SCORES BY GRADE
FROM A TOP HOMOGENEOUS GROUP OF FOURTH GRADE STUDENTS
SOLANO SCHOOL, OSBORN SCHOOL DISTRICT #8
PHOENIX, ARIZONA

January 23, 1980
May 20, 1980

STUDENT # 22

SCORES BY GRADE FOR THE SOI-LA TEST

TABLES OF EVALUATION FOR THE SOI-LA BASIC TEST



Pre-Test, January 23, 1980_____
Post-Test, May 20, 1980 ------

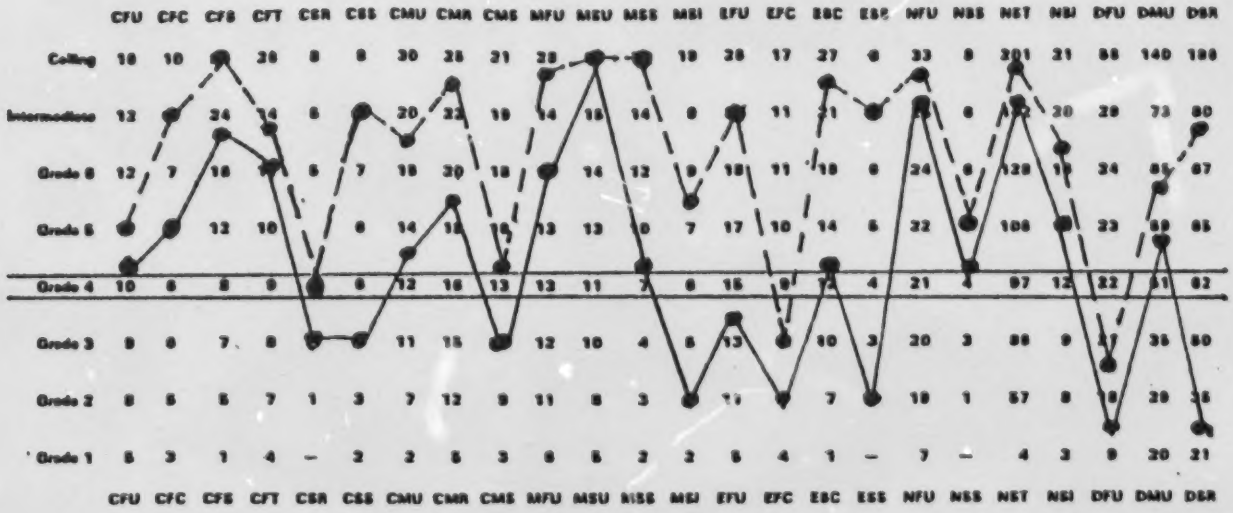
STRUCTURE OF THE INTELLECT LEARNING ABILITIES TEST
GRAPH OF ATTAINED SCORES BY GRADE
FROM A TOP HOMOGENEOUS GROUP OF FOURTH GRADE STUDENTS
SOLANO SCHOOL, OSBORN SCHOOL DISTRICT #8
PHOENIX, ARIZONA

January 23, 1980
May 20, 1980

STUDENT # 23

SCORES BY GRADE FOR THE SOI-LA TEST

TABLES OF EVALUATION FOR THE SOI-LA BASIC TEST


CFU CFC CFS CFT CSR CSS CMU CMR CMS MFU MSU MSS MSI EFU EFC ESC ESS NFU NSS NST NSI DFU DMU DSR
Ceiling
Intermediate
Grade 6
Grade 5
Grade 4
Grade 3
Grade 2
Grade 1

Pre-Test, January 23, 1980_____

Post-Test, May 20, 1980 ------

97

98

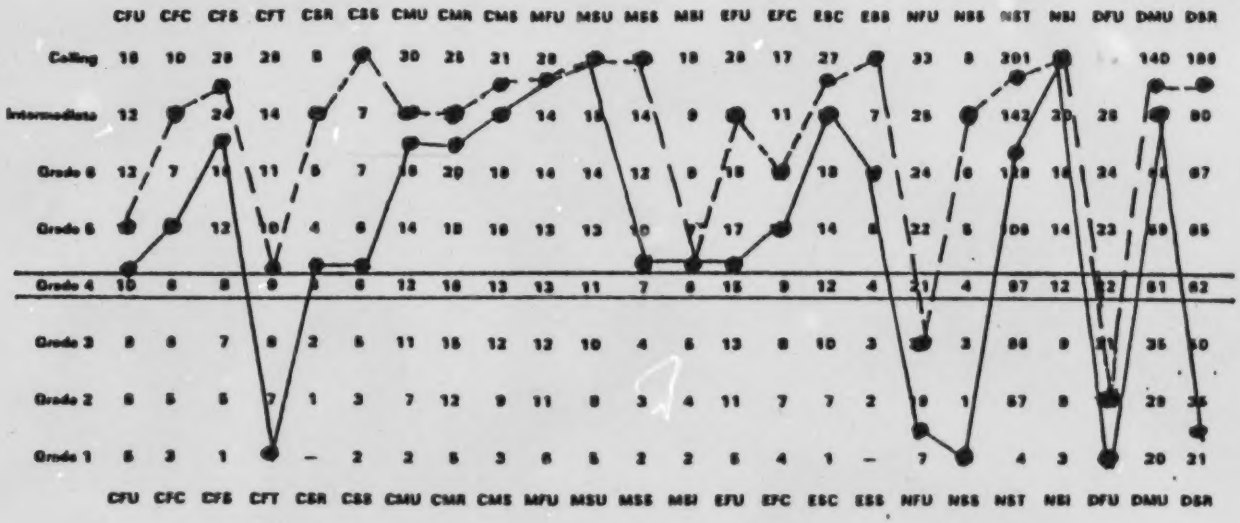
STRUCTURE OF THE INTELLECT LEARNING ABILITIES TEST
GRAPH OF ATTAINED SCORES BY GRADE
FROM A TOP HOMOGENEOUS GROUP OF FOURTH GRADE STUDENTS
SOLANO SCHOOL, OSBORN SCHOOL DISTRICT #8
PHOENIX, ARIZONA

January 23, 1980
May 20, 1980

STUDENT # 24

SCORES BY GRADE FOR THE SOI-LA TEST

TABLES OF EVALUATION FOR THE SOI-LA BASIC TEST


CFU CFC CFS CFT CSR CSS CMU CMR CMS MFU MSU MSS MSI EFU EFC ESC ESS NFU NSS NST NSI DFU DMU DSR
Ceiling
Intermediate
Grade 6
Grade 5
Grade 4
Grade 3
Grade 2
Grade 1

Pre-Test, January 23, 1980_____

Post-Test, May 20, 1980 ------

99

100

62

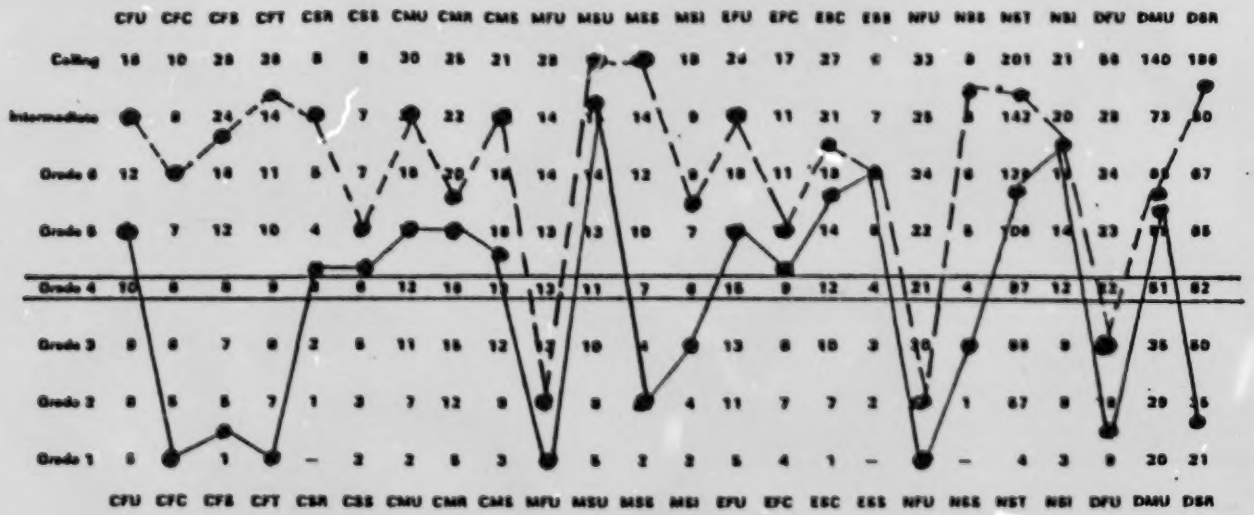
STRUCTURE OF THE INTELLECT LEARNING ABILITIES TEST
GRAPH OF ATTAINED SCORES BY GRADE
FROM A TOP HOMOGENEOUS GROUP OF FOURTH GRADE STUDENTS
SOLANO SCHOOL, OSBORN SCHOOL DISTRICT #8
PHOENIX, ARIZONA

January 23, 1980
May 20, 1980

STUDENT # 25

SCORES BY GRADE FOR THE SOI-LA TEST

TABLES OF EVALUATION FOR THE SOI-LA BASIC TEST


CFU CFC CFS CFT CSR CSS CMU CMR CMS MFU MSU MSS MSI EFU EFC ESC ESS NFU NSS NST NSI DFU DMU DSR
Ceiling
Intermediate
Grade 6
Grade 5
Grade 4
Grade 3
Grade 2
Grade 1
CFU CFC CFS CFT CSR CSS CMU CMR CMS MFU MSU MSS MSI EFU EFC ESC ESS NFU NSS NST NSI DFU DMU DSR

Pre-Test, January 23, 1980_____

Post-Test, May 20, 1980 ------

101

102

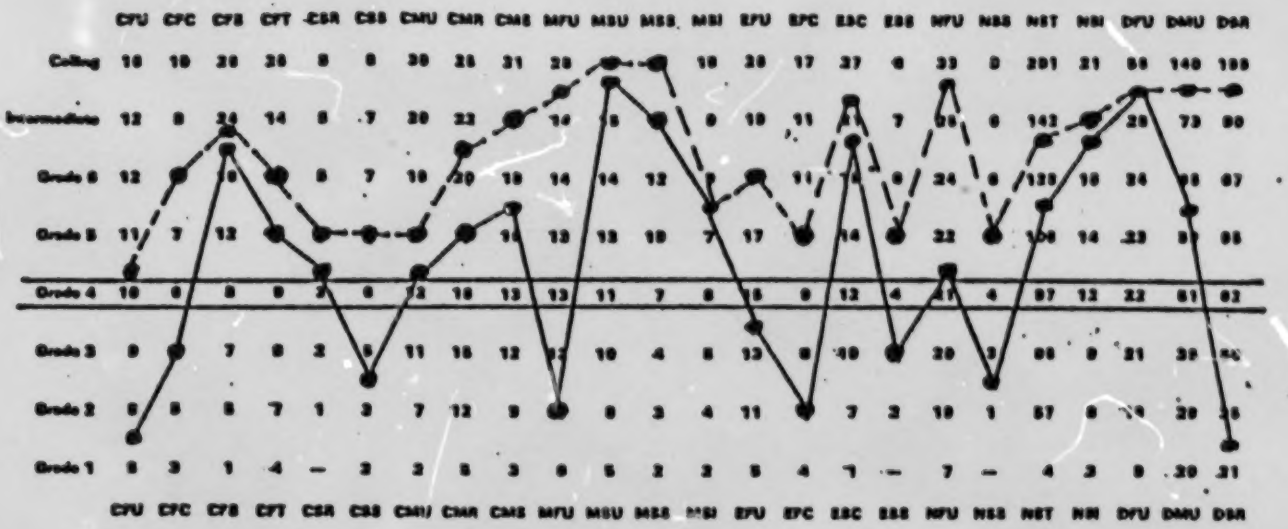
STRUCTURE OF THE INTELLECT LEARNING ABILITIES TEST
GRAPH OF ATTAINED SCORES BY GRADE
FROM A TOP HOMOGENEOUS GROUP OF FOURTH GRADE STUDENTS
SOLANO SCHOOL, OSBORN SCHOOL DISTRICT #8
PHOENIX, ARIZONA

January 23, 1980
May 20, 1980

STUDENT # 26

SCORES BY GRADE FOR THE SOI-LA TEST

TABLES OF EVALUATION FOR THE SOI-LA BASIC TEST


CFU CFC CFB CFT CSR CSS CMU CMR CMS MFU MSU MSS MSI EFU EFC ESC ESS NFU NSS NST NSI DFU DMU DSR
College
Intermediate
Grade 6
Grade 5
Grade 4
Grade 3
Grade 2
Grade 1
CFU CFC CFB CFT CSR CSS CMU CMR CMS MFU MSU MSS MSI EFU EFC ESC ESS NFU NSS NST NSI DFU DMU DSR

Pre-Test, January 23, 1980_____

Post-Test, May 20, 1980 ------

APPENDIX B

TABLE 1 - GRADE ACHIEVEMENT 4.0 GRADE LEVEL OR ABOVE

IN TWENTY-FOUR PRE-SUBTESTS OF THE SOI-LA TESTS

FOR EACH STUDENT

TABLE 1

SOI-LA Test - Structure of the Intellect-Learning Abilities Test
Table of Attained Scores By Grade From A Top Homogeneous Group of Fourth Grade Students
Solano School, Osborn School District #8, Phoenix, Arizona - January 23, 1980

GRADE ACHIEVEMENT 4.0 GRADE LEVEL OR ABOVE IN SUBTESTS OF SOI-LA

Student Number	CFU	CFC	CFS	CFT	CSR	CSS	CMU	CMR	CMS	MFU	MSU	MSS	MSI	EFU	EFC	ESC	ESS	NFU	NSS	NST	NSI	DFU	DMU	DSR	Total Subtests Below 4.0
1	6.0		4.5		4.0	6.0	6.0	6.5	5.5	7.0	7.0	5.5			5.0	7.0	6.0	6.0		6.0	6.5		5.0		17
2	5.0		5.5			5.0	4.0	6.0	4.0	6.0	6.0	7.0	5.0	4.5	4.0	5.0	5.0			4.0	8.0			7.0	17
3	4.0			5.0	5.0	4.5			5.0		7.0	7.0	5.0			5.0	5.0			6.0	7.0	7.0			13
4			6.0	5.0			5.5	6.0	4.0		6.0				4.0	5.0	5.0	5.0		7.5	4.5				12
5	5.0		7.0			4.0			4.5	7.0	7.0	7.0			4.0	4.5		7.0	6.0	6.5	7.0	6.0			14
6	6.0	5.0				4.0	6.5	6.0	5.0	7.0	7.0	6.0	4.0	5.0	5.0	5.5	5.0			5.5	7.0	6.0	5.0	5.5	19
7			4.0			4.0	6.0				7.0	6.0				4.5				5.0	6.5		6.5		9
8		5.0	7.0		5.0	6.0	7.0	6.0	6.0	7.0	7.0	7.0	5.0		6.0	7.0	8.0	7.0	6.0	6.0	8.0		4.5	6.0	20
9		4.0	4.5	4.0			4.0		5.5	7.0	8.0	6.0	5.5			4.0		8.0		6.0	6.0	6.0		7.0	15
10	6.0			6.0	4.0	4.0		4.5			6.0	4.0									6.5	7.0	6.0		10
11		4.0	4.5		6.0		5.5	5.0			7.0	5.0				5.5		8.0		5.5	6.0		4.0	5.0	13
12					5.0	4.0	4.5	5.0			6.0	6.0				4.5		8.0		6.5	6.0		7.0		11
13		5.0						5.5	4.0		7.0	6.0	5.0							4.0	6.5		5.5		9
14	6.0		6.0	6.0			5.0	6.0	5.0		7.0			4.5	4.0	5.5				6.0	6.0				12
15			4.0		4.0			6.5	4.0		8.0	8.0		4.5	5.0	5.5		7.0		6.0	6.5		5.5		13
16		4.0	6.5					6.0	4.5		7.0	8.0	5.0		4.0	4.0	4.0			7.0			4.5		12
17	4.0				6.0	4.0	6.0	5.5	4.5		7.0	4.0		4.0		4.0		6.0	4.0	7.0	8.0		6.0		15
18		5.0		4.0				5.0			7.0	5.0			5.0		4.0	4.0		5.5	7.0		7.0		11
19	6.0	7.0	6.5		6.0	4.0		5.5	5.0		7.0			4.0		6.5				5.5	5.5				12
20		5.0					4.0	4.5			8.0	7.0			5.0	6.0				5.5	8.0				9
21	7.0		5.0			4.0	4.5	5.0	6.0	4.0	8.0				7.0	5.5	7.0		6.0	5.5	8.0		5.5		15
22						4.0		6.0			7.0	6.0				5.0		7.0			6.0		4.0		8
23	4.0	5.0	6.5	6.0			4.5	5.5		6.0	8.0	4.0				4.0		7.0	4.0	7.0	5.0		4.5		15
24	4.0	5.0	6.5		4.0	4.0	6.5	6.5	7.0	7.0	8.0	4.0	4.0	4.0	5.0	7.0	6.0			6.5	8.0		7.0		19
25	5.0				4.0	4.0	5.0	5.0	4.5		7.0			5.0	4.0	5.5	6.0			5.5	6.5		5.5		14
26			6.5	5.0	4.0		4.0	5.0	5.5		7.0	7.0	5.5			6.5		4.0		5.5	6.5	8.0	5.5		15

APPENDIX C

TABLE 2 - GRADE ACHIEVEMENT BELOW 4.0 GRADE LEVEL

IN TWENTY-FOUR PRE-SUBTESTS OF THE SOI-LA

TEST FOR EACH STUDENT

TABLE 2

SOI-LA Test - Structure of the Intellect-Learning Abilities Test
Table of Attained Scores By Grade From A Top Homogeneous Group of Fourth Grade Students
Solano School, Osborn School District #8, Phoenix, Arizona - January 23, 1980

GRADE ACHIEVEMENT BELOW 4.0 GRADE LEVEL IN SUBTESTS OF SOI-LA

Student Number	CFU	CFC	CFS	CFT	CSR	CSS	CMU	CMR	CMS	MFU	MSU	MSS	MSI	EFU	EFC	ESC	ESS	NFU	NSS	NST	NSI	DFU	DMU	DSR	Total Subtests Below 4.0
1		1.5		1.5									1.5	3.0					2.5			1.5		1.5	7
2		1.0		1.0	3.0								3.0					2.0				1.0	3.5		7
3		.5	1.5				3.0	3.5		3.0				3.5	3.0			1.5	1.5				3.0	.5	11
4	.5	1.0		2.0	2.0					.5		1.0	2.0	2.0					3.0			2.0	2.0	1.5	12
5		1.0		3.0	3.0		3.0	3.0					2.0	3.0			3.0						3.0	2.5	10
6			1.5	2.0	3.0													2.0	2.0						5
7	1.0	1.0		1.5	2.0			2.0	2.5	1.5			1.5	1.5	2.0		1.0	3.0	1.0			1.0		1.0	15
8	1.5			1.5										3.0								3.0			4
9	1.5				2.0	3.0		2.5						3.0	3.0		1.0		2.0				3.5		9
10		2.0	2.5				2.0		3.0	1.0			3.0	2.0	1.0	3.0	3.0	1.5	2.0		2.5			1.0	14
11	1.5			1.5		2.0			3.0	1.0			2.0	3.0	2.0		2.0		3.0			2.0			11
12	3.0	3.0	1.0	2.0					3.0	1.0			1.0	2.5	2.0		3.0		2.5			2.0		2.5	13
13	1.0		1.5	1.5	3.0	3.0	3.0			3.0				1.5	3.0	3.5	3.0	1.0	2.0			1.0		1.0	15
14		2.0			2.0	3.0				1.0		3.0	2.0				2.0	2.0	2.0			1.5	3.5	1.0	12
15	3.0	2.0		3.0		3.0	3.0			1.0			2.0	2.0					2.5			3.0		2.0	11
16	3.0			1.0	3.0	2.5	2.5			1.5				2.5				1.5	3.0		3.0	1.0		2.5	12
17		3.0	3.0	3.0						1.0			2.0		3.5	3.5						1.5		1.5	9
18	2.0		1.5		2.0	3.0	2.5		3.0	1.5			1.0	1.5		3.5			2.5			3.0		2.5	13
19				2.0			1.5			3.0		3.0	3.0		3.0		3.0	1.5	2.5			1.0	3.5	1.0	12
20	3.0		2.5	1.5	3.0	3.0			2.5	1.5			1.5	3.5			3.0	1.0	1.0			1.0	3.5	2.0	15
21		1.0		1.5	3.0							2.0	1.0	3.0				1.5				1.5	3.0		9
22	1.5	1.0	1.5	2.0	3.0		3.0		3.0	1.0			2.0	2.0	2.0		3.0		2.0	3.5		1.5		1.0	16
23					3.0	3.0			3.0				2.0	3.5	2.0		2.0					1.5		1.5	9
24				1.0														1.5	1.0			1.0		1.5	5
25		1.0	1.5	1.0						1.0		2.0	3.0					1.0	3.0			1.5		1.5	10
26	1.5	3.0				2.5				2.0				3.5	2.0		3.0		2.5					1.5	9

APPENDIX D

TABLE 3 - EXPECTED ATTAINMENT OF SOI-LA SUBTEST SCORES

FOR EACH STUDENT AFTER INTERVENTION PROGRAM

TABLE 3

FOURTH GRADE STUDENTS SOLANO SCHOOL JANUARY 23, 1980
EXPECTED ATTAINMENT OF STRUCTURE OF THE INTELLECT-LEARNING ABILITIES TEST, SOI-LA
SUBTEST SCORES AFTER FOUR MONTHS INTERVENTION PROGRAM

Student Number	Boy or Girl	Chronological Age	Otis-Lennon M.A. Test Elem II Form J Performance by Age			Attendance By Days		No. of S.O.I. Subtests 4.0 or Above	Teacher Remarks	Contrib. Factors Which Lower the Individual Expected Attainment	After 4 Mos. Intervention Program the Individual Expected Attainment By Year or Month in 100% of Subtests Which Are Below Grade Level		No.of S.O.I.Subtests Which will Show Growth
		Yrs. Mos.	DIQ	%ile	Stanine	Present	Ab.				Increase by Yrs.	Months	
1	F	10 0	122	77	9	81	2	17	Responsible,hard worker,popular.		1	0	7
2	M	9 6	133	96	9	83	0	17	Sharp,answers beyond regular knowledge		1	0	7
3	F	9 4	130	92	8	82	1	13	Emotional, immature, hyperactive,sloppy, careless work		1	0	11
4	M	9 9	125	93	8	81	2	12	Class clown, mischievous, doesn't pay attention		1	0	12
5	F	9 10	119	87	7	80	3	14	Hearing loss, conscientious,average		1	0	10
6	F	9 8	116	94	8	81	2	19	Continues to improve		1	0	5
7	F	9 5	108	54	5	64	19	9	Needs extra direct. has much difficulty doing work	DIQ only 108;%ile=54; and stanine only 5; has much difficulty doing work;excessive absence approx. 9.5 mos. younger; only 7 subtests 4.0 or above with 17 below	0	5	15
8	F	9 10	147	99	9	82	1	20	Sharp, will defend being right to a point of being disrespectful		1	0	4
9	F	9 11	112	76	7	83	0	15	Trouble understanding work, pouty, mean, immature	DIQ only 112; %ile=76 stanine only 7, trouble understanding work	0	5	9
10	F	9 7	105	52	5	79	4	10	Babyish, must be prompted to do work, trouble with direct.	DIQ only 105 (lowest in class;%ile=52;stanine=5; great trouble in compreh. directions.	0	5	14

TABLE 3 - Continued

Student Number	Boy or Girl	Chronological Age		Otis-Lennon M.A. Test Elem II Form J Performance by Age			Attendance By Days		No. of S.O.I Subtests 4.0 or Above	Teacher Remarks	Contrib. Factors Which Lower the Individual Expected Attainment	After 4 Mos. Intervention Program the Individual Expected Attainment by Year or Month in 100% of Subtests Which Are Below Grade Level		No.of S.O.I. Subtests Which will Show Growth
		Years	Mos.	DIQ	%ile	Stanine	Present	Ab.				Increase by Years	Months	
11	M	10	0	121	92	8	80	3	13	Causes disturbance, quits easily, does not spend time on work	DIQ only 121, %ile=92; stanine 8; extreme misbehavior	0	5	11
12	M	10	10	105	78	7	77	6	11	Cries easily, especially if grades are low	DIQ only 105 (lowest in class; %ile=78; Stanine 7; excessive absence demonstrates disturbance concerning low marks by crying	0	5	13
13	F	10	1	116	86	7	81	2	9	Always needs extra directions, problem home, shy, quiet	DIQ onl 116; %ile=86; stanine=7; very shy; needs special direction; only 9 subtests 4.0 or above	0	5	15
14	M	9	5	130	92	8	76	7	12	Work sloppy, works hard		1	0	12
15	F	10	0	122	93	8	79	4	13	Average, tries hard, strong home background		1	0	11
16	M	10	3	127	97	9	79	4	12	Responsible, works hard, popular		1	0	12
17	F	9	8	125	90	8	61	22	1	Does good work, sickly		1	0	9
18	F	9	7	115	76	6	83	0	11	Always needs extra directions, easily distracted	DIQ only 115; %ile=76; stanine=6; easily distracted and always needs extra directions	0	5	13
19	F	10	0	139	99	9	83	0	12	Quiet, apprehensive, complaining		1	0	12
20	F	9	7	115	76	6	69	14	9	Follows rules; conscientious	DIQ only 115; %ile=76; stanine=6; excessive absences, only 9 subtests 4.0 or above	0	5	15

TABLE 3 - Continued

Student Number	Boy or Girl	Chronological Age		Otis-Lennon M.A. Test Elem II Form J Performance by Age			Attendance By Days		No. of S.O.I. Subtests 4.0 or Above	Teacher Remarks	Contrib. Factors Which Lower the Individual Expected Attainment	After 4 Mos. Intervention Program the Individual Expected Attainment By Year or Month in 100% of Subjects Which Are Below Grade Level		No.of S.O.I Subtests Which will Show Growth
		Years	Mos.	DIQ	%ile	Stanine	Present	Ab.				Increase by Years	Months	
21	M	9	8	116	78	7	78	5	15	Wants to excel, hard worker	DIQ only 116; %ile =78; stanine =7	0	5	9
22	F	10	2	108	70	6	82	1	8	Quiet, keeps to self	DIQ only 108; %ile=70; stanine=6; 14 subtests below 4.0 with only 8 above	0	5	16
23	M	10	2	111	78	7	81	2	15	Clowns into trouble, doesn't finish work	DIQ only 111; %ile=78; stanine=7; doesn't finish work.	0	5	9
24	F	10	0	120	97	9	80	3	19	Large-fat, does good work, no friends		1	0	5
25	M	9	7	133	96	9	82	1	14	Cries easily, defensive, low in math, high in reading		1	0	10
26	F	9	11	124	92	8	80	3	15	Uses her ability		1	0	9

APPENDIX E

TABLE 4 - COMPARISON OF THE SOI-LA PRE-SUBTEST SCORES WITH THE POST-SUBTEST SCORES FOR EACH STUDENT

TABLE 4

FOURTH GRADE SOLANO SCHOOL, JULY 1980

THE SOI-LA TEST, STRUCTURE OF THE INTELLECT-LEARNING ABILITIES TEST
COMPARISON OF PRE-SUBTEST SCORES WHICH WERE BELOW 4.0 GRADE ACHIEVEMENT
WITH THE POST-SUBTEST SCORES

Student # 1

Name of Subtest	Pre Subtest Years Months	Post Subtest Years Months	Comparison of Pre and Post Subtests - gain Years Months	Anticipated Attainment Of Subtest Years Months	Was the 100% Anticipated Achievement Reached Yes	No
CFC	1.5	7.5	6.0	1.0	x	
CFT	1.5	6.5	5.0	1.0	x	
MSI	1.5	5.5	4.0	1.0	x	
EFU	3.0	7.5	4.5	1.0	x	
NSS	2.5	5.0	2.5	1.0	x	
DFU	1.5	5.0	3.5	1.0	x	
DSR	1.5	7.5	6.0	1.0	x	
					120	
119						
						74

TABLE 4

FOURTH GRADE SOLANO SCHOOL, JULY 1980

THE SOI-LA TEST, STRUCTURE OF THE INTELLECT-LEARNING ABILITIES TEST
COMPARISON OF PRE-SUBTEST SCORES WHICH WERE BELOW 4.0 GRADE ACHIEVEMENT
WITH THE POST-SUBTEST SCORES

Student # 2

Name of Subtest	Pre Subtest Years Months	Post Subtest Years Months	Comparison of Pre and Post Subtests - gain Years Months	Anticipated Attainment Of Subtest Years Months	Was the 100% Anticipated Achievement Reached Yes No
CFC	1.0	2.0	1.0	1.0	x
CFT	1.0	7.5	6.5	1.0	x
CSR	3.0	7.5	4.5	1.0	x
MSI	3.0	5.0	2.0	1.0	x
NFU	2.0	6.0	4.0	1.0	x
DFU	1.0	2.0	1.0	1.0	x
DMU	3.5	5.0	1.5	1.0	x
					122
121					

TABLE 4

FOURTH GRADE SOLANO SCHOOL, JULY 1980

THE SOI-LA TEST, STRUCTURE OF THE INTELLECT-LEARNING ABILITIES TEST
COMPARISON OF PRE-SUBTEST SCORES WHICH WERE BELOW 4.0 GRADE ACHIEVEMENT
WITH THE POST-SUBTEST SCORES

Student # 3

Name of Subtest	Pre Subtest Years Months	Post Subtest Years Months	Comparison of Pre and Post Subtests - gain Years Months	Anticipated Attainment Of Subtest Years Months	Was the 100% Anticipated Achievement Reached Yes No
CFC	.5	3.0	2.5	1.0	x
CFS	1.5	6.5	5.0	1.0	x
CMU	3.0	7.0	4.0	1.0	x
CMR	3.5	6.0	2.5	1.0	x
MFU	3.0	6.0	3.0	1.0	x
EFU	3.5	5.0	1.5	1.0	x
EFC	3.0	5.0	2.0	1.0	x
NFU	1.5	3.0	1.5	1.0	x
NSS	1.5	7.0	5.5	1.0	x
DMU	3.0	5.0	2.0	1.0	x
DSR	.5	1.5	1.0	1.0	x

TABLE 4

FOURTH GRADE SOLANO SCHOOL, JULY 1980

THE SOI-LA TEST, STRUCTURE OF THE INTELLECT-LEARNING ABILITIES TEST
COMPARISON OF PRE-SUBTEST SCORES WHICH WERE BELOW 4.0 GRADE ACHIEVEMENT
WITH THE POST-SUBTEST SCORES

Student # 4

Name of Subtest	Pre Subtest Years Months	Post Subtest Years Months	Comparison of Pre and Post Subtests - gain Years Months	Anticipated Attainment Of Subtest Years Months	Was the 100% Anticipated Achievement Reached Yes	No
CFU	.5	4.0	3.5	1.0	x	
CFC	1.0	2.0	1.0	1.0	x	
CFT	2.0	6.0	2.0	1.0	x	
CSR	2.0	4.0	2.0	1.0	x	
MFU	.5	1.5	1.0	1.0	x	
MSS	1.0	2.0	1.0	1.0	x	
MSI	2.0	4.0	2.0	1.0	x	
EFU	2.0	3.0	1.0	1.0	x	
NSS	3.0	4.0	1.0	1.0	x	
DFU	2.0	3.0	1.0	1.0	x	
DMU	2.0	4.5	2.5	1.0	x	
DSR	1.5	7.0	6.5	1.0	x	

TABLE 4

FOURTH GRADE SOLANO SCHOOL, JULY 1980

THE SOI-LA TEST, STRUCTURE OF THE INTELLECT-LEARNING ABILITIES TEST
COMPARISON OF PRE-SUBTEST SCORES WHICH WERE BELOW 4.0 GRADE ACHIEVEMENT
WITH THE POST-SUBTEST SCORES

Student # 5

Name of Subtest	Pre Subtest Years Months	Post Subtest Years Months	Comparison of Pre and Post Subtests - gain Years Months	Anticipated Attainment Of Subtest Years Months	Was the 100% Anticipated Achievement Reached Yes No
CFC	1.0	3.0	2.0	1.0	x
CFT	3.0	6.0	3.0	1.0	x
CSR	3.0	7.0	4.0	1.0	x
CMU	3.0	6.0	3.0	1.0	x
CMR	3.0	4.0	1.0	1.0	x
MSI	2.0	8.0	6.0	1.0	x
EFU	3.0	4.5	1.5	1.0	x
ESS	3.0	4.0	1.0	1.0	x
DMU	3.0	5.0	2.0	1.0	x
DSR	2.5	6.5	4.0	1.0	x

TABLE 4

FOURTH GRADE SOLANO SCHOOL, JULY 1980

THE SOI-LA TEST, STRUCTURE OF THE INTELLECT-LEARNING ABILITIES TEST
COMPARISON OF PRE-SUBTEST SCORES WHICH WERE BELOW 4.0 GRADE ACHIEVEMENT
WITH THE POST-SUBTEST SCORES

Student # 6

Name of Subtest	Pre Subtest Years Months	Post Subtest Years Months	Comparison of Pre and Post Subtests - gain Years Months	Anticipated Attainment Of Subtest Years Months	Was the 100% Anticipated Achievement Reached Yes No
CFS	1.5	4.5	3.0	1.0	x
CFT	2.0	3.0	1.0	1.0	x
CSR	3.0	7.0	4.0	1.0	x
NFU	2.0	7.0	5.0	1.0	x
NSS	2.0	4.0	2.0	1.0	x

TABLE 4

FOURTH GRADE SOLANO SCHOOL, JULY 1980

THE SOI-LA TEST, STRUCTURE OF THE INTELLECT-LEARNING ABILITIES TEST
COMPARISON OF PRE-SUBTEST SCORES WHICH WERE BELOW 4.0 GRADE ACHIEVEMENT
WITH THE POST-SUBTEST SCORES

Student # 7

Name of Subtest	Pre Subtest Years Months	Post Subtest Years Months	Comparison of Pre and Post Subtests - gain Years Months	Anticipated Attainment Of Subtest Years Months	Was the 100% Anticipated Achievement Reached Yes	No
CFU	1.0	2.0	1.0	.5	x	
CFC	1.0	1.5	..5	.5	x	
CFT	1.5	4.0	2.5	.5	x	
CSR	2.0	3.0	1.0	.5	x	
CMR	2.0	4.0	2.0	.5	x	
CMS	2.5	4.5	2.0	.5	x	
MFU	1.5	7.0	5.5	.5	x	
MSI	1.5	5.0	3.5	.5	x	
EFU	1.5	6.0	4.5	.5	x	
EFC	2.0	3.0	1.0	.5	x	
ESS	1.0	1.5	.5	.5	x	
NFU	3.0	7.5	4.5	.5	x	
NSS	1.0	1.5	.5	.5	x	
DFU	1.0	4.0	3.0	.5	x	
DSR	1.0	6.5	5.5	.5	x	

TABLE 4

FOURTH GRADE SOLANO SCHOOL, JULY 1980

THE SOI-LA TEST, STRUCTURE OF THE INTELLECT-LEARNING ABILITIES TEST
COMPARISON OF PRE-SUBTEST SCORES WHICH WERE BELOW 4.0 GRADE ACHIEVEMENT
WITH THE POST-SUBTEST SCORES

Student # 8

Name of Subtest	Pre Subtest Years Months	Post Subtest Years Months	Comparison of Pre and Post Subtests - gain Years Months	Anticipated Attainment Of Subtest Years Months	Was the 100% Anticipated Achievement Reached Yes No
CFU	1.5	4.0	2.5	1.0	x
CFT	1.5	7.5	6.0	1.0	x
EFU	3.0	6.0	3.0	1.0	x
DFU	3.0	6.5	3.5	1.0	x

TABLE 4

FOURTH GRADE SOLANO SCHOOL, JULY 1980

THE SOI-LA TEST, STRUCTURE OF THE INTELLECT-LEARNING ABILITIES TEST
COMPARISON OF PRE-SUBTEST SCORES WHICH WERE BELOW 4.0 GRADE ACHIEVEMENT
WITH THE POST-SUBTEST SCORES

Student # 9

Name of Subtest	Pre Subtest Years	Pre Subtest Months	Post Subtest Years	Post Subtest Months	Comparison of Pre and Post Subtests - gain Years	Comparison of Pre and Post Subtests - gain Months	Anticipated Attainment Of Subtest Years	Anticipated Attainment Of Subtest Months	Was the 100% Anticipated Achievement Reached Yes	Was the 100% Anticipated Achievement Reached No
CFU	1	5	5	0	3	5		5	x	
CSR	2	0	4	0	2	0		5	x	
CSS	3	0	8	0	5	0		5	x	
CMR	2	5	4	0	1	5		5	x	
EFU	3	0	4	5	1	5		5	x	
EFC	3	0	7	5	4	5		5	x	
ESS	1	0	5	0	4	0		5	x	
NSS	2	0	2	5		5		5	x	
DMU	3	5	5	5	2	0		5	x	

TABLE 4

FOURTH GRADE SOLANO SCHOOL, JULY 1980

THE SOI-LA TEST, STRUCTURE OF THE INTELLECT-LEARNING ABILITIES TEST
COMPARISON OF PRE-SUBTEST SCORES WHICH WERE BELOW 4.0 GRADE ACHIEVEMENT
WITH THE POST-SUBTEST SCORES

Student # 10

Name of Subtest	Pre Subtest Years Months	Post Subtest Years Months	Comparison of Pre and Post Subtests - gain Years Months	Anticipated Attainment Of Subtest Years Months	Was the 100% Anticipated Achievement Reached Yes No
CFC	2.0	7.0	5.0	.5	x
CFS	2.5	4.5	2.0	2.0	x
CMU	2.0	4.0	2.0	.5	x
CMS	3.0	3.5	.5	.5	x
MFU	1.0	7.5	1.5	.5	x
MSI	3.0	7.0	4.0	.5	x
EFU	2.0	6.0	4.0	.5	x
EFC	1.0	4.0	3.0	.5	x
ESC	3.0	7.0	4.0	.5	x
ESS	3.0	4.0	1.0	.5	x
NFU	1.5	7.0	5.5	.5	x
NSS	2.0	4.0	2.0	.5	x
NST	3.0	3.5	.5	.5	x
DSR	1.0	3.5	2.5	.5	x
137					

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TABLE 4

FOURTH GRADE SOLANO SCHOOL, JULY 1980

THE SOI-LA TEST, STRUCTURE OF THE INTELLECT-LEARNING ABILITIES TEST
COMPARISON OF PRE-SUBTEST SCORES WHICH WERE BELOW 4.0 GRADE ACHIEVEMENT
WITH THE POST-SUBTEST SCORES

Student # 11

Name of Subtest	Pre Subtest Years Months	Post Subtest Years Months	Comparison of Pre and I Subtests - Gain Years Months	Anticipated Attainment Of Subtest Years Months	Was the 100% Anticipated Achievement Reached Yes No
CFU	1.5	4.0	2.5	.5	x
CFT	1.5	3.0	1.5	.5	x
CSS	2.0	7.0	5.0	.5	x
CMS	3.0	6.0	3.0	.5	x
MFU	1.0	2.0	1.0	.5	x
MSI	2.0	5.5	3.5	.5	x
EFU	3.0	5.0	2.0	.5	x
EFC	2.0	5.0	3.0	.5	x
ESS	2.0	5.0	3.0	.5	x
NSS	3.0	5.0	2.0	.5	x
DFU	2.0	2.5	.5	.5	x

TABLE 4

FOURTH GRADE SOLANO SCHOOL, JULY 1980

THE SOI-LA TEST, STRUCTURE OF THE INTELLECT-LEARNING ABILITIES TEST
COMPARISON OF PRE-SUBTEST SCORES WHICH WERE BELOW 4.0 GRADE ACHIEVEMENT
WITH THE POST-SUBTEST SCORES

Student # 12

Name of Subtest	Pre Subtest Years Months	Post Subtest Years Months	Comparison of Pre and Post Subtests - gain Years Months	Anticipated Attainment Of Subtest Years Months	Was the 100% Anticipated Achievement Reached Yes No
CFU	3.0	7.5	4.5	.5	x
CFC	3.0	7.0	4.0	.5	x
CFS	1.0	3.0	2.0	.5	x
CFT	2.0	4.0	2.0	.5	x
CMS	3.0	4.5	1.5	.5	x
MFU	1.0	6.0	5.0	.5	x
MSI	1.0	2.0	1.0	.5	x
EFU	2.5	3.0	.5	.5	x
EFC	2.0	7.0	5.0	.5	x
ESS	3.0	6.0	3.0	.5	x
NSS	2.5	4.0	1.5	.5	x
DFU	2.0	6.5	4.5	.5	x
DSR	2.5	3.5	1.0	.5	x

TABLE 4

FOURTH GRADE SOLANO SCHOOL, JULY 1980

THE SOI-LA TEST, STRUCTURE OF THE INTELLECT-LEARNING ABILITIES TEST
COMPARISON OF PRE-SUBTEST SCORES WHICH WERE BELOW 4.0 GRADE ACHIEVEMENT
WITH THE POST-SUBTEST SCORES

Student # 13

Name of Subtest	Pre Subtest Years Months	Post Subtest Years Months	Comparison of Pre and Post Subtests - gain Years Months	Anticipated Attainment Of Subtest Years Months	Was the 100% Anticipated Achievement Reached Yes	No
CFU	1.0	5.0	4.0	.5	x	
CFS	1.5	2.0	.5	.5	x	
CFT	1.5	2.0	.5	.5	x	
CSR	3.0	5.0	2.0	.5	x	
CSS	3.0	4.0	1.0	.5	x	
CMU	3.0	4.5	1.5	.5	x	
MFU	3.0	7.5	4.5	.5	x	
EFU	1.5	4.0	2.5	.5	x	
EFC	3.0	4.0	1.0	.5	x	
ESC	3.5	6.5	3.0	.5	x	
ESS	3.0	4.0	1.0	.5	x	
NFU	1.0	2.0	1.0	.5	x	
NSS	2.0	5.0	3.0	.5	x	
DFU	1.0	7.5	6.5	.5	x	
DSR	1.0	3.5	2.5	.5	x	

TABLE 4

FOURTH GRADE SOLANO SCHOOL, JULY 1980

THE SOI-LA TEST, STRUCTURE OF THE INTELLECT-LEARNING ABILITIES TEST
COMPARISON OF PRE-SUBTEST SCORES WHICH WERE BELOW 4.0 GRADE ACHIEVEMENT
WITH THE POST-SUBTEST SCORES

Student # 14

Name of Subtest	Pre Subtest Years Months	Post Subtest Years Months	Comparison of Pre and Post Subtests - gain Years Months	Anticipated Attainment Of Subtest Years Months	Was the 100% Anticipated Achievement Reached Yes No
CFC	2.0	6.0	4.0	1.0	x
CSR	2.0	4.0	2.0	1.0	x
CSS	3.0	5.0	2.0	1.0	x
MFU	1.0	3.0	1.0	1.0	x
MSS	3.0	8.0	5.0	1.0	x
MSI	2.0	5.0	3.0	1.0	x
ESS	2.0	4.0	2.0	1.0	x
NFU	2.0	7.5	5.5	1.0	x
NSS	2.0	4.0	2.0	1.0	x
DFU	1.5	7.5	6.0	1.0	x
DMU	3.5	6.0	2.5	1.0	x
DSR	1.0	6.5	5.5	1.0	x

TABLE 4

FOURTH GRADE SOLANO SCHOOL, JULY 1980

THE SOI-LA TEST, STRUCTURE OF THE INTELLECT-LEARNING ABILITIES TEST
COMPARISON OF PRE-SUBTEST SCORES WHICH WERE BELOW 4.0 GRADE ACHIEVEMENT
WITH THE POST-SUBTEST SCORES

Student # 15

Name of Subtest	Pre Subtest Years Months	Post Subtest Years Months	Comparison of Pre and Post Subtests - gain Years Months	Anticipated Attainment Of Subtest Years Months	Was the 100% Anticipated Achievement Reached Yes	No
CFU	3.0	4.0	1.0	1.0	x	
CFC	2.0	3.0	1.0	1.0	x	
CFT	3.0	5.5	2.5	1.0	x	
CSS	3.0	4.0	1.0	1.0	x	
CMU	3.0	8.0	5.0	1.0	x	
MFU	1.0	5.5	4.5	1.0	x	
MSI	2.0	7.5	5.5	1.0	x	
EFU	2.0	5.5	3.5	1.0	x	
NSS	2.5	4.5	2.0	1.0	x	
DFU	3.0	7.5	4.5	1.0	x	
DSR	2.0	7.5	5.5	1.0	x	

TABLE 4

FOURTH GRADE SOLANO SCHOOL, JULY 1980

THE SOI-LA TEST, STRUCTURE OF THE INTELLECT-LEARNING ABILITIES TEST
COMPARISON OF PRE-SUBTEST SCORES WHICH WERE BELOW 4.0 GRADE ACHIEVEMENT
WITH THE POST-SUBTEST SCORES

Student # 16

Name of Subtest	Pre Subtest Years	Pre Subtest Months	Post Subtest Years	Post Subtest Months	Comparison of Pre and Post Subtests - gain Years	Comparison of Pre and Post Subtests - gain Months	Anticipated Attainment Of Subtest Years	Anticipated Attainment Of Subtest Months	Was the 100% Anticipated Achievement Reached Yes	Was the 100% Anticipated Achievement Reached No
CFU	3	0	7	5	4	5	1	0	x	
CFT	1	0	6	5	5	5	1	0	x	
CSR	3	0	4	0	1	0	1	0	x	
CSS	2	5	5	0	2	5	1	0	x	
CMU	2	5	6	0	3	5	1	0	x	
MFU	1	5	7	5	6	0	1	0	x	
EFU	2	5	7	0	4	5	1	0	x	
NFU	1	5	3	0	1	5	1	0	x	
NSS	3	0	7	0	4	0	1	0	x	
NSI	3	0	8	0	5	0	1	0	x	
DFU	1	0	2	0	1	0	1	0	x	
DSR	2	5	7	5	5	0	1	0	x	
							1	0		

TABLE 4

FOURTH GRADE SOLANO SCHOOL, JULY 1980

THE SOI-LA TEST, STRUCTURE OF THE INTELLECT-LEARNING ABILITIES TEST
COMPARISON OF PRE-SUBTEST SCORES WHICH WERE BELOW 4.0 GRADE ACHIEVEMENT
WITH THE POST-SUBTEST SCORES

Student # 17

Name of Subtest	Pre Subtest Years Months	Post Subtest Years Months	Comparison of Pre and Post Subtests - gain Years Months	Anticipated Attainment Of Subtest Years Months	Was the 100% Anticipated Achievement Reached Yes	No
CFC	3.0	7.0	4.0	1.0	x	
CFS	3.0	6.0	3.0	1.0	x	
CFT	3.0	6.0	3.0	1.0	x	
MFU	1.0	7.5	6.5	1.0	x	
MSI	2.0	7.0	5.0	1.0	x	
EFC	3.5	4.5	1.0	1.0	x	
ESC	3.5	7.0	3.5	1.0	x	
DFU	1.5	7.5	6.0	1.0	x	
DSR	1.5	7.5	6.0	1.0	x	

TABLE 4

FOURTH GRADE SOLANO SCHOOL, JULY 1980

THE SOI-LA TEST, STRUCTURE OF THE INTELLECT-LEARNING ABILITIES TEST
COMPARISON OF PRE-SUBTEST SCORES WHICH WERE BELOW 4.0 GRADE ACHIEVEMENT
WITH THE POST-SUBTEST SCORES

Student # 18

Name of Subtest	Pre Subtest Years Months	Post Subtest Years Months	Comparison of Pre and Post Subtests - gain Years Months	Anticipated Attainment Of Subtest Years Months	Was the 100% Anticipated Achievement Reached Yes	No
CFU	2.0	5.0	3.0	.5	x	
CFS	1.5	6.0	4.5	.5	x	
CSR	2.0	5.0	3.0	.5	x	
CSS	3.0	3.5	0.5	.5	x	
CMU	2.5	6.0	3.5	.5	x	
CMR	3.0	5.5	2.5	.5	x	
MFU	1.5	7.5	6.0	.5	x	
MSI	1.0	7.5	6.5	.5	x	
EFU	1.5	7.5	6.0	.5	x	
FSC	3.5	7.0	3.5	.5	x	
NSS	2.5	3.0	.5	.5	x	
DFU	3.0	6.0	3.0	.5	x	
DSR	2.5	7.5	5.0	.5	x	

TABLE 4

FOURTH GRADE SOLANO SCHOOL, JULY 1980

THE SOI-LA TEST, STRUCTURE OF THE INTELLECT-LEARNING ABILITIES TEST
COMPARISON OF PRE-SUBTEST SCORES WHICH WERE BELOW 4.0 GRADE ACHIEVEMENT
WITH THE POST-SUBTEST SCORES

Student # 19

Name of Subtest	Pre Subtest Years Months	Post Subtest Years Months	Comparison of Pre and Post Subtests - gain Years Months	Anticipated Attainment Of Subtest Years Months	Was the 100% Anticipated Achievement Reached Yes	No
CFT	2.0	6.5	4.5	1.0	x	
CMU	1.5	5.5	4.0	1.0	x	
MFU	3.0	7.5	4.5	1.0	x	
NSS	3.0	8.0	5.0	1.0	x	
MSI	3.0	4.0	1.0	1.0	x	
EFC	3.0	5.0	2.0	1.0	x	
ESS	3.0	6.0	3.0	1.0	x	
NFU	1.5	3.0	1.5	1.0	x	
NSS	2.5	7.0	4.5	1.0	x	
DFU	1.0	2.0	1.0	1.0	x	
DMU	3.5	4.5	1.0	1.0	x	
DSR	1.0	2.0	1.0	1.0	x	

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TABLE 4

FOURTH GRADE SOLANO SCHOOL, JULY 1980

THE SOI-LA TEST, STRUCTURE OF THE INTELLECT-LEARNING ABILITIES TEST
COMPARISON OF PRE-SUBTEST SCORES WHICH WERE BELOW 4.0 GRADE ACHIEVEMENT
WITH THE POST-SUBTEST SCORES

Student # 20

Name of Subtest	Pre Subtest Years Months	Post Subtest Years Months	Comparison of Pre and Post Subtests - gain Years Months	Anticipated Attainment Of Subtest Years Months	Was the 100% Anticipated Achievement Reached Yes	No
CFU	3.0	3.5	.5	.5	x	
CFS	2.5	7.0	4.5	.5	x	
CFT	1.5	3.0	1.5	.5	x	
CSR	3.0	4.0	1.0	.5	x	
CSS	3.0	7.0	4.0	.5	x	
CMS	2.5	3.5	1.0	.5	x	
MFU	1.5	7.5	6.0	.5	x	
MSI	1.5	3.0	1.5	.5	x	
EFU	3.5	6.0	2.5	.5	x	
ESS	3.0	4.0	1.0	.5	x	
NFU	1.0	2.0	1.0	.5	x	
NSS	1.0	4.0	3.0	.5	x	
DFU	1.0	2.0	1.0	.5	x	
DMU	3.5	5.5	2.0	.5	x	
DSR	2.0	2.5	.5	.5	x	

TABLE 4

FOURTH GRADE SOLANO SCHOOL, JULY 1980

THE SOI-LA TEST, STRUCTURE OF THE INTELLECT-LEARNING ABILITIES TEST
COMPARISON OF PRE-SUBTEST SCORES WHICH WERE BELOW 4.0 GRADE ACHIEVEMENT
WITH THE POST-SUBTEST SCORES

Student # 21

Name of Subtest	Pre Subtest Years Months	Post Subtest Years Months	Comparison of Pre and Post Subtests - gain Years Months	Anticipated Attainment Of Subtest Years Months	Was the 100% Anticipated Achievement Reached Yes	No
CFC	1.0	5.0	4.0	.5	x	
CFT	1.5	6.5	5.0	.5	x	
CSR	3.0	5.0	2.0	.5	x	
MSS	2.0	8.0	6.0	.5	x	
MSI	1.0	1.5	.5	.5	x	
EFU	3.0	5.0	2.0	.5	x	
NFU	1.5	3.0	1.5	.5	x	
DFU	1.5	6.5	5.0	.5	x	
DMU	3.0	4.0	1.0	.5	x	
					160	
159						

TABLE 4

FOURTH GRADE SOLANO SCHOOL, JULY 1980

THE SOI-LA TEST, STRUCTURE OF THE INTELLECT-LEARNING ABILITIES TEST
COMPARISON OF PRE-SUBTEST SCORES WHICH WERE BELOW 4.0 GRADE ACHIEVEMENT
WITH THE POST-SUBTEST SCORES

Student # 22

Name of Subtest	Pre Subtest Years	Pre Subtest Months	Post Subtest Years	Post Subtest Months	Comparison of Pre and Post Subtests - gain Years	Comparison of Pre and Post Subtests - gain Months	Anticipated Attainment Of Subtest Years	Anticipated Attainment Of Subtest Months	Was the 100% Anticipated Achievement Reached Yes	Was the 100% Anticipated Achievement Reached No
CFU	1	5	4	0	2	5		5	x	
CFC	1	0	1	5		5		5	x	
CFS	1	5	5	5	4	0		5	x	
CFT	2	0	3	0	1	0		5	x	
CSR	3	0	5	0	2	0		5	x	
CMU	3	0	4	0	1	0		5	x	
CMS	3	0	6	0	3	0		5	x	
MFU	1	0	7	5	6	5		5	x	
MSI	2	0	7	0	5	0		5	x	
EFU	2	0	5	0	3	0		5	x	
EFC	2	0	2	5		5		5	x	
ESS	3	0	5	0	2	0		5	x	
NSS	2	0	4	0	2	0		5	x	
NST	3	5	5	5	2	0		5	x	
DFU	1	5	4	0	2	5		5	x	
DSR	1	0	1	5		5		5	x	

TABLE 4

FOURTH GRADE SOLANO SCHOOL, JULY 1980

THE SOI-LA TEST, STRUCTURE OF THE INTELLECT-LEARNING ABILITIES TEST
COMPARISON OF PRE-SUBTEST SCORES WHICH WERE BELOW 4.0 GRADE ACHIEVEMENT
WITH THE POST-SUBTEST SCORES

Student # 21

Name of Subtest	Pre Subteat Years Months	Post Subtest Years Months	Comparison of Pre and Post Subtests - gain Years Months	Anticipated Attainment Of Subtest Years Months	Was the 100% Anticipated Achievement Reached Yes	No
CSR	3.0	4.0	1.0	.5	x	
CSS	3.0	7.0	4.0	.5	x	
CMS	3.0	4.0	1.0	.5	x	
MSI	2.0	5.5	3.5	.5	x	
EFU	3.5	7.0	3.5	.5	x	
EFC	2.0	3.0	1.0	.5	x	
ESS	2.0	7.0	5.0	.5	x	
DFU	1.5	2.5	1.0	.5	x	
DSR	1.5	6.5	5.0	.5	x	

TABLE 4

FOURTH GRADE SOLANO SCHOOL, JULY 1980

THE SOI-LA TEST, STRUCTURE OF THE INTELLECT-LEARNING ABILITIES TEST
COMPARISON OF PRE-SUBTEST SCORES WHICH WERE BELOW 4.0 GRADE ACHIEVEMENT
WITH THE POST-SUBTEST SCORES

Student # 24

Name of Subtest	Pre Subtest Years Months	Post Subtest Years Months	Comparison of Pre and Post Subtests - gain Years Months	Anticipated Attainment Of Subtest Years Months	Was the 100% Anticipated Achievement Reached Yes	No
CFT	1.0	4.0	3.0	1.0	x	
NFU	1.5	3.0	1.5	1.0	x	
NSS	1.0	7.0	6.0	1.0	x	
NSI	1.0	2.0	1.0	1.0	x	
DSR	1.5	7.5	6.0	1.0	x	
					166	

165

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TABLE 4

FOURTH GRADE SOLANO SCHOOL, JULY 1980

THE SOI-LA TEST, STRUCTURE OF THE INTELLECT-LEARNING ABILITIES TEST
COMPARISON OF PRE-SUBTEST SCORES WHICH WERE BELOW 4.0 GRADE ACHIEVEMENT
WITH THE POST-SUBTEST SCORES

Student # 25

Name of Subtest	Pre Subtest Years Months	Post Subtest Years Months	Comparison of Pre and Post Subtests - gain Years Months	Anticipated Attainment Of Subtest Years Months	Was the 100% Anticipated Achievement Reached Yes No
CFC	1.0	6.0	5.0	1.0	x
CFS	1.5	6.5	5.0	1.0	x
CFT	1.0	7.5	6.5	1.0	x
MFU	1.0	2.0	1.0	1.0	x
MSS	2.0	8.0	6.0	1.0	x
MSI	3.0	5.5	2.5	1.0	x
NFU	1.0	2.0	1.0	1.0	x
NSS	3.0	7.5	4.5	1.0	x
DFU	1.5	3.0	1.5	1.0	x
DSR	1.5	7.5	6.0	1.0	x

TABLE 4

FOURTH GRADE SOLANO SCHOOL, JULY 1980

THE SOI-LA TEST, STRUCTURE OF THE INTELLECT-LEARNING ABILITIES TEST
COMPARISON OF PRE-SUBTEST SCORES WHICH WERE BELOW 4.0 GRADE ACHIEVEMENT
WITH THE POST-SUBTEST SCORES

Student # 26

Name of Subtest	Pre Subtest Years Months	Post Subtest Years Months	Comparison of Pre and Post Subtests - gain Years Months	Anticipated Attainment Of Subtest Years Months	Was the 100% Anticipated Achievement Reached Yes No
CFU	1.5	4.0	2.5	1.0	x
CFC	3.0	6.0	3.0	1.0	x
CSS	2.5	5.0	3.0	1.0	x
MFU	2.0	7.5	5.5	1.0	x
EFU	3.5	6.0	2.5	1.0	x
EFC	2.0	5.0	3.0	1.0	x
ESS	3.0	5.0	2.0	1.0	x
NSS	2.5	5.0	2.5	1.0	x
DSR	1.5	7.5	6.0	1.0	x
					170
					66
169					

APPENDIX F

TABLE 5 - COMPARISON OF THE SOI-LA TOTAL NUMBER OF ANTICIPATED ATTAINMENT OF PRE-SUBTEST SCORES AND THE POST-SUBTEST SCORES FOR ALL STUDENTS

TABLE 5

FOURTH GRADE SOLANO SCHOOL, JULY 1980
COMPARISON OF PRE AND POST SUBTEST SCORES FROM
STRUCTURE OF THE INTELLECT-LEARNING ABILITIES TEST, SOI-LA
AFTER THE INTERVENTION PROGRAM

Student Number	No.of SOI Subtests Which Are To Reach Anticipated Attainment (Pre-Test)	No. of SOI Subtests Which Did Reach Anticipated Attainment (Post-Test)	No. Of Subtests Equal to Anticipated Attainment	No. of Subtests Which Excelled Anticipated Attainment	The 100% Anticipated Attainment Was Reached
1	7	7	0	7	x
2	7	7	2	5	x
3	11	11	1	10	x
4	12	12	6	6	x
5	10	10	2	8	x
6	5	5	1	4	x
7	15	15	3	12	x
8	4	4	0	4	x
9	9	9	1	8	x
10	14	14	2	12	x
11	11	11	1	10	x
12	13	13	1	12	x
13	15	15	2	13	x
14	12	12	1	11	x
15	11	11	3	8	x
16	12	12	2	10	x
17	9	9	1	8	x
18	13	13	2	11	x
19	12	12	4	8	x
20	15	15	2	13	x
21	9	9	1	8	x
22	16	16	3	13	x
23	9	9	0	9	x
24	5	5	1	4	x
25	10	10	2	8	x
26	9	9	0	9	x

APPENDIX G

TABLE 6 - RESULTS OF POST-SUBTEST SCORES FOR ALL STUDENTS WITH LOWER ANTICIPATED ACHIEVEMENT OF 0.5 MONTHS

TABLE 6

FOURTH GRADE SOLANO SCHOOL, JULY 1980
RESULTS OF POST-SUBTEST FOR ALL STUDENTS WITH LOWER
ANTICIPATED ACHIEVEMENT OF 0.5 MONTHS

Student	Number of .5 Anticipated Achievement Post-Subtest	Otis Lennon D.I.Q.	Other Factors
7	3	108	Excessive absence Youngest in class
9	1	112	Trouble understanding work
10	2	105	Trouble in comprehension Trouble in following directions
11	1	121	Extreme misbehavior
12	1	105	Excessive absence Easily distressed - cries
13	2	116	Needs special directions
18	2	115	Easily distracted Needs extra directions
20	2	115	Excessive absence
21	1	116	16 pre-subtests below 4.0 Stanine of 7
22	3	108	14 pre-subtests below grade level
23	0	111	Doesn't finish work

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GLOSSARY

GLOSSARY FOR SOI FACTOR DEFINITIONS FOR THE SOI-LA TEST

Cognition

CFU - Ability to identify objects by name, visually and auditorially
CFC - Classifies perceived objects
CFS - Perceives spatial patterns and maintains orientation
CFT - Manipulates or transforms objects into another visual arrangemen
CSR - Discovers relations involving letter patterns
CSS - Ability to discover complex relationships forming patterns or systems involving symbols
CMU - Vocabulary
CMR - Discovers relations in conceptual, abstract meanings
CMS - Ability to comprehend or structure problems in preparation for solving them

Memory

MFU - Recalls materials learned by visual and auditory presentation
MSU - Recalls for immediate production after one presentation a series of numerals or letters
MSS - Memory for a system of numerals, symbols, or letters
MSI - Memory for well-practiced number operations

Evaluation

EFU - Ability to identify identical forms
EFC - Ability to classify units - to analyze how they are classified
ESC - Ability to judge applicability of class properties of symbolic information, i.e. judging of a class in which to place numbers, letters, or signs
ESS - Ability to estimate appropriateness of aspects of a symbolic system

Convergent Production

NFU - Ability to comprehend and reproduce an observed bit of behavior
NSS - States the order of symbolic systems from start to goal correctl
NST - Ability to produce new symbolic items of information by revising given items
NSI - Substitutes or derives symbols as expected

Divergent Production

DFU - Ability to produce many figures conforming to simple specifications
DSR - Generates a variety of relations between numbers or letters
DMU - Ability to call up many ideas in a specified class